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THE PRESENCE OF THE MICROCOCCUS IN THE BLOOD OF MALIGNANT MEASLES: ITS IMPORTANCE IN TREATMENT.

*Read before the College of Physicians of Philadelphia,
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I PROPOSE to present for your consideration this evening the report of a recent epidemic in the Children's Asylum of the Philadelphia Hospital. The ward in which the disease first showed itself contained children between the ages of two and three years; some of them had been deserted by their mothers, and others had been placed there temporarily whilst the mothers were employed in duties about the establishment. For the most part, these children presented a fair appearance of health; they were seemingly well nourished, of good development, though probably they would have been classed as "strumous," if their large features and tendency to glandular enlargements and eczematous eruptions had received careful attention. Together with all children of this class living in asylums, they certainly presented an open field for the production of those complications that are usually such fatal attendants upon measles.

In order to save time, I shall in this paper simply narrate the history of the cases. The little patients were zealously cared for by Dr. H. E. Campbell, Resident Physician, to whom I am indebted for the record of the notes taken at each of my visits.

I shall also embody in this report the investigation undertaken by Dr. Henry F. Formad, now well known as the patient and thorough investigator of the microscopic appearance of the blood in diphtheria, associated with Dr. H. C. Wood, under the auspices of the National Board of Health. Dr. Formad examined almost daily the blood of each little patient, and together we noted the presence of micrococci in the malignant cases, and their absence in those of mild type. A record of these examinations was kept by Dr. W. A.

Edwards, Assistant Pathologist, as also the records of the post-mortem examinations, and to him I am indebted for them. We entered this study with no preconceived views: the rapidity with which this exceedingly fatal epidemic came upon us necessitated careful study, in order to attempt, if possible, to discover its cause. I present also some photographs, which show well the appearance of the field in these cases.

Case I.—J. F., aged 2 years and 3 months, was taken sick April 12, 1882. There had been no cases of well-defined measles in the house at that time, although it was epidemic in the city. The child had a sore throat, some cough, with fever. The throat-eruption was punctated and well marked. The child died in convulsions April 15, 1882.

Autopsy.—An ante-mortem (chicken-fat) clot was found in the right heart, extending into the pulmonary artery. There was great systemic venous engorgement. A decided staining was noticed upon the cadaver, especially about the temple, which caused the remark that the disease was probably one of the exanthemata. This child had been placed upon carbonate of ammonia, quinia, and digitalis; had had bromide of potassium, hot baths, and stimulants in small quantities.

Case II.—M. J., aged 3 years and 5 months, was taken sick April 9, 1882. A slight eruption on the face was noted April 11, 1882; the next day the eruption was complete over the entire body. In this case the eruption was irregular, was decidedly that of measles, but of malignant type. Still, she did well until April 17, 1882, when suddenly the breathing became harsh, and pulse was rapid. At 4.30 P.M. had an attack of suffocation, with rapid feeble pulse. There was general venous engorgement; the face and lips were purple; pulse growing more rapid. Hot baths with mustard and frictions were used, and carbonate of ammonia and digitalis given. It was suggested to bleed in this case, but the evidences of heart-clot were so marked, and the child had exhibited so many evidences of malignancy at the onset, that baths were used instead. April 11, 1882, at 3 A.M., she was still growing worse despite treatment, and shortly after had a violent convulsion and died.

There was no autopsy permitted.

Case III.—A. G., æt. 16 months. Took sick April 15, 1882.

April 16 had prodromes of measles. The temperature and pulse ran as follows:

16th.	P.M. 102°.
17th.	A.M. 101°, P.M. 103°, pulse 180.
18th.	A.M. 102°, P.M. 103°, pulse 180.
19th.	A.M. 101°, P.M. 102°, pulse 160.
20th.	A.M. 101°, P.M. 102°, pulse 148.
21st.	A.M. 100°, P.M. 100°, pulse 180.

In this case no defined eruption appeared on the body, although there was a decided papular eruption on the uvula and anterior half-arches of the throat. Whilst showing this case to the class, we noted streaks of grayish membrane in the fauces. The child had decided bronchitis, and the voice showed that the laryngeal mucous membrane was also affected. This child was not at that time very ill. There was no question in our minds at the time that it was affected severely by the measles poison,—that it was, in fact, another malignant case. It was carefully watched, the nourishment regularly given with quinia and iron daily, as was customary in all the cases.

On the 21st the breathing was noted as peculiar (I shall describe it hereafter). An emetic was ordered of ipecac, fearing an accumulation of mucus from the bronchitis present, and also carbonate of ammonia and digitalis and hot foot-baths were given. The child's intelligence seemed good, and it will be noted that the temperature was but 100°, while the pulse was 180.

At 8 P.M. a second attack of suffocation occurred, and the child died in violent convulsions. The venous engorgement was very marked.

Autopsy.—A. G., baby, aged 1 year. Post-mortem examination held ten hours after death.

Heart. Left side and valves all normal.

Right side. A large ante-mortem clot filling the cavity of the right ventricle, and extending into the auricle; a clot was also seen in the pulmonary artery.

Lungs. Left, normal.

Right lung. At the base of this lung the lesions of pulmonary congestion were seen, especially where the lung approximates the diaphragm.

Intestines. Slightly congested and hyperæmic.

Mesenteric glands. Enlarged and infiltrated by simple congestion.

Kidneys. Normal.

Blood. Taken from the heart-cavity as soon as it was opened and examined showed micrococci in the liquor sanguinis and in the white blood-corpuscles.

Case IV.—J. F. McH., æt. 23 months. This child had a typical attack of measles. The case was shown to my ward class several times throughout its course, the eruption was studied carefully in all of its details, and my friend Dr. John M. Taylor obtained for me an excellent representation of the measles in water-colors from this case. I refer especially to these points as evidence that the epidemic was one of measles: the cases heretofore were so irregular as to leave room for doubt to those hearing the recital of their histories. The eruption was rapidly disappearing, and desquamation had set in. April 21 the bronchitis seemed to be aggravated, the

respirations were 36, and expirations seemed unusually prolonged. The breathing was noisy; the heart's action was rapid, pulse 148. Suddenly, in the evening, an attack of suffocation came on, which was relieved by an inhalation of nitrite of amyl. On the morning of April 22 the heart was beating 168; the venous engorgement was very marked, the jugular veins standing out like whip-cords, the respirations were from 36 to 40, but the temperature was 99°. I saw the child at this time, and noted the gasping breathing, the feeble pulse, and the tumultuous action of the heart. There seemed to be capillary spasm, judging from the gasping breath, the imploring look which the child gave to all its attendants, and we at once gave an inhalation of nitrite of amyl. In a few moments it seemed relieved. The administration of carbonate of ammonia, digitalis, hot baths, etc., was rigidly adhered to. The child seemed comfortable until 4.30 P.M., when it had another attack of milder character, though longer duration, and in it finally died of convulsions. It was observed, says Dr. Campbell in his notes, that the convulsion was not as severe as in the previous cases.

Autopsy.—J. F. McH., post-mortem made twenty hours after death.

Eruption not well marked.

Heart. Right ventricle contained a small ante-mortem clot. This clot was in the cavity of the ventricle, and did not involve the valves, either tricuspid or pulmonary. The left side of the heart was normal in every respect; contained no clot.

Lungs. Normal, with the exception of hypostatic congestion at both bases. The pulmonary and costal pleura of the left side were inflamed and adherent in some places.

Trachea. Inflamed, and containing a tenacious mucous secretion.

Larynx. Inflamed and hyperæmic.

Liver. Normal.

Intestines. Peyer's patches and the solitary and agminated glands infiltrated and hyperæmic.

Mesenteric glands. Enlarged and infiltrated; they were about the size of a grain of corn.

Kidneys. Normal.

Spleen. Amyloid bodies enlarged until they presented almost the appearance seen in a tubercular spleen.

Blood. Taken from heart as soon as punctured. Micrococci were found in the liquor sanguinis and in the white blood-corpuscles, and they were mobile. In the corpuscles they were seen in great numbers in active movement of a vibratory or whirling character, and they appeared to have devoured the white cells. No bacilli were seen.

Case V.—J. McG., æt. 26 months. Ordinary case of measles. The eruption had disappeared on or before April 15.

April 22. Child restless; marked bron-

chitis; cough paroxysmal upon waking, especially after excitement; mucous râles coarse, and fine throughout lungs posteriorly; throat congested, and saliva at times tinged with blood. At this date the breathing was noted as noisy. Pulse 144, respirations 32, temperature 100°.

April 23. Mucous râles becoming general, and not limited to areas as heretofore; pulse 152, respirations 34, temperature 101°. In addition to the tonic and stimulating treatment, mustard poultices were applied to thorax and hot baths frequently given. Carbonate of ammonia was given now, gr. ij, every hour, and bisulphate of quinia by suppository, gr. ij, every three hours. In addition to this, the child was given, as were all the others, milk and lime-water, beef-tea, etc., at frequent intervals. We also used in this case the frequent administration of small doses of syr. ipecac to relieve the secretion, which was abundant and tenacious.

April 23. Evening. Pulse was rapid, 160 to 170; temperature 102½°; breathing becoming labored and gasping (fish-like); venous stasis was becoming more marked. Increased the whiskey to about one ounce a day. The attacks of suffocation continued paroxysmally: the jugular veins stood out like cords at times. *Nitrite of amyl* gave immediate relief, but relapse soon followed; it was always followed by free emesis, which seemed to be in itself beneficial. About midnight a severe paroxysm came on, and with it a convulsion, in which the child died. After death the venous engorgement was more marked, and heart-clot had been suspected for some time before. This little patient was the first case whose blood Dr. Formad examined during life. The view of the fluid was photographed; *micrococci were found in great abundance, acting especially on the white corpuscles*. The blood was examined very shortly before the child's death, when the symptoms of heart-clot had been fairly established, and the case declared hopeless.

Unfortunately, no autopsy was permitted in this case.

Case VI.—F. M., aged 2½ years. This case ran a course as did the others, and I will only occupy time with a description of the post-mortem appearances.

Eruption well marked on mucous membrane of buccal cavity, not so on cutaneous surface.

Upon laying thorax open, lungs found to be anæmic, as far as arterial circulation was concerned, but dammed up with venous blood.

Heart. Normal in size and weight.

Right side contained a clot extending along the pulmonary artery for some distance: it was chicken-fat in consistence.

Left side. Normal.

Spleen. Congested; weight four ounces.

Intestines. Along the small intestine could

be seen a few Peyer's patches inflamed, and well outlined against the comparatively normal gut. The mesenteric glands presented a very good example of enlargement and infiltration; they looked like so many peas scattered throughout the mesentery.

Liver. Normal.

Kidneys. Normal.

Brain. Not examined.

Blood. Taken from heart-cavity as soon as it was open showed micrococci in the liquor sanguinis and in the white blood-corpuscles, in abundance; they were not mobile. A number of zoogloea masses were seen.

Case VII.—C. M., aged 2½ years. The eruption in the throat of this child was very well marked. A few crescentic points appeared in the temples, and the case rapidly developed malignant symptoms.

April 21. Slight grayish suspicious patches of membrane are seated in the throat. The child is hoarse, and there is much bronchitis.

April 22. Pulse rapid; respiration 28; breathing irregular. There is great general venous stasis, the skin dark and mottled.

Dr. Formad examined the blood microscopically, and found it full of micrococci. He took a specimen sample for photography. Prognosis very unfavorable, as the child has fluttering heart and gasping breathing. Hot baths had been used freely with no success, so also salicylic acid, which had been suggested early in the disease.

After consultation with Dr. Formad, the account of which I incorporate in the summary, it was concluded to give at once 3ij of whiskey, and repeat it every hour; milk was continued as the only other food.

April 24. Pulse 144, temperature 101°, respiration 48. Circulation much improved. Venous engorgement relieved; breathing greatly improved. The child continued to improve during the day. At the end of the twenty-four hours it had taken six ounces of whiskey, and yet it showed no effects of alcoholism. At noon the pulse was 140, respiration 36; 6 P.M. pulse 132, respiration 32; 11 P.M. pulse 132, respiration 26, and regular, breathing easy, though somewhat noisy, but not harsh.

April 25. A.M., temperature 98°, pulse 128, respiration 26; P.M., temperature 98°, pulse 108, respiration 24.

April 26. A.M., temperature 98°, pulse 96, respiration 22; P.M., temperature 98°, pulse 104, respiration 24.

The respirations remained regular, and the child continued to improve.

After the examination of the blood on April 30, owing to the relative increase of the white corpuscles, it was decided to give Fowler's solution of arsenic, gr. ij, three times daily. The large doses of whiskey were kept up for three or four days, and gradually diminished.

I give Dr. Formad's reports, which he kindly wrote out for me.

Microscopic examination of the blood in

the above case. (Examination made with a one-sixteenth immersion lens.)

Examination April 22, 1882.—Blood full of micrococci (sphero-bacteria), affecting many of the white blood-corpuscles; also a large quantity of these fungi free and in various forms of grouping, mostly in zoogloea masses. White blood-corpuscles are in increased quantity; precipitation of fibrin excessively marked under the glass.

April 24. (Same case.) Micrococci present, but in diminished quantity; white blood-corpuscles less affected; precipitation of fibrin less marked.

April 26. (Same case.) Micrococci very marked, yet principally in zoogloea masses and free in serum, but not affecting the white corpuscles, although the latter are in increased quantity; fibrin not noticeable.

April 30. (Same case.) Micrococci present; white blood-corpuscles still in excess, but not affected by micrococci. Red blood-corpuscles not readily forming rouleaux, having lost partly their biconcavity.

May 3. (Same case.) Micrococci present in diminished quantity. White blood-corpuscles diminishing in quantity.

May 7. (Same case.) Same as last.

May 18. (Same case.) Still some few micrococci present; blood otherwise appears normal.

Case VIII.—J. W., æt. 8 months. May 13, P.M. Eruption appeared on fifth day. The temperature ran as follows:

May 13. A.M. , P.M. 100 $\frac{3}{4}$ °.

May 14. A.M. 101 $\frac{2}{4}$ °, P.M. 102 $\frac{3}{4}$ °.

May 15. A.M. 101°, P.M. 103 $\frac{3}{4}$ °.

May 16. A.M. 101 $\frac{3}{4}$ °, P.M. 104°.

May 17. A.M. 101°, P.M. 102 $\frac{3}{4}$ °.

May 18. A.M. 102°, P.M. 103 $\frac{3}{4}$ °.

May 19. A.M. 100°, P.M. 103°.

May 20. A.M. 103 $\frac{3}{4}$ °, P.M. 102°.

May 21. A.M. 105°, death.

May 13. A fever mixture was given during the day. Quiniaz et ferri citratis, gr. ij, every three hours.

May 18. The eruption fading, but leaving a purple stain and mottled appearance of skin. Catarrhal pneumonia or collapse probably exists, as the bronchitis is very extensive, the râles numerous, and subcrepitant. The blood examined under the microscope shows micrococci in the blood-corpuscles, but none free in the field. They are seen in great numbers.

May 19, P.M. For the past two hours the child has been very restless, the breathing rapid and labored, and also spasmodic. No membrane on tonsils or fauces. Heart's action very rapid, venous stasis marked, especially in the jugular veins. Gave hot baths (say Dr. Campbell's notes), and covered him with blankets, with some relief. Increased the whiskey to 3ij every hour.

In the evening gave an emetic. The child at night was breathing easier; friction-sounds heard.

May 20. At times strangulation would seem imminent. The venous engorgement increased, and the child died in convulsions on the morning of the 21st.

The post-mortem examination showed pneumonia and pleurisy with effusion.

The following eight cases were all taken sick at once, and I shall simply give a general statement of them for the purpose of especially calling attention to the case of W. L.:

J. J., aged 4 years; W. L., aged 5 years; E. C., aged 3 years, catarrhal bronchitis; W. W., aged 3 years; C. B., aged 2 years, catarrhal bronchitis; J. W., aged 5 years; J. D., aged 5 years; L. K., aged 5 years.

Of these eight, seven presented severe but nevertheless typical examples of measles, and their blood was carefully examined by Dr. Formad and found normal. The case of W. L., who was taken ill at the same time as the others, showed from the onset a malignant tendency, giving a record such as I have already described. Dr. Formad gave me the following as the result of the examination of the blood in this case, and I had frequent occasion of examining it with him myself. Let me say that as soon as the presence of micrococci was established, the child was placed upon 3ij doses of whiskey every hour, quiniæ et ferri citratis in citric acid, gr. ij, every three hours, friction to the extremities, and warm baths, with milk and beef-tea.

April 22. A few micrococci seen in the field.

April 26. Again noted.

April 30. Micrococci still present; white corpuscles increased, and marked precipitation of fibrin. None were noted as having penetrated the corpuscles; those that were found were simply in the serum. This child recovered, though every indication gave a very unfavorable prognosis.

In presenting this detailed report I desire to call especial attention to the following points,—viz., the microscopic examination of the blood and the constant association of micrococci with the general manifestations of malignancy (a condition already well known), and the gradual but positive amelioration of all bad symptoms by treatment which was directed to the micrococci as the *fons et origo* of trouble (this, I believe, for the first time exhibited).

It will be noted that the post-mortem examinations of these cases showed more or less simple pulmonary congestion, and at times simple enlargement of the glands, but usually so circumscribed as to preclude the possibility of its being the immediate,

or even remote, cause of death. Again, the mode of death was peculiar: the fatal signs came on suddenly and with frightful intensity, the gasping breathing, the frantic efforts to obtain air (or really to aerate the blood), the imploring look, with consciousness not impaired, seemingly unduly acute, until the final convulsion or gradual cyanosis brought the end. The turgid veins, the occasional venous engorgement, the feeble pulse, and the fluttering heart pointed unmistakably to but one cause, the gradually forming right-sided heart-clot; and the post-mortem appearances, as these notes show, gave us a large, tough, chicken-fat clot, obstructing the venous circulation, firmly planted in the right heart and its tributaries, which was too often exhibited to raise a question. One of the earliest symptoms of this impending danger was undue rapidity of respiration. The child seemed to be doing well, its eruption irregular, probably incomplete, or dark and mottled, and in blotches, when attention would be called to the great rapidity of respiration with a peculiar gasping inspiration, fish-like in character. The other fatal symptoms would follow rapidly, and within twelve hours the child, despite carbonate of ammonia, warm baths, digitalis, etc., would die of heart-clot. What caused this?

In a short paper which appeared in the *American Journal of the Medical Sciences* for January, 1882, I gave the experience of a number of cases of diphtheria, scarlet fever, and measles, and then attributed the condition to an increase of fibrin due to the rapid tissue-changes and the malignancy of the type of disease, and urged the importance of pushing an alkaline treatment from the start.

The microscope has shown here that something more is associated with this condition.

The moment that symptoms of malignancy—viz., dark eruptions, feebly-defined crescents, delayed and imperfect appearance of the eruption, with feeble circulation, high temperature, and pharyngeal false membrane—appeared, the examination of the blood showed *micrococci* in abundance in the field. They do not simply lie as impediments to the free passage of blood, though they undoubtedly do this, and obstruct its passage in capillaries, but they surround the corpuscles, they enter the white corpuscles, and there develop with

surprising rapidity, and finally cause some of them to rupture, and their contents will cover the field. Still, if they alone clogged the circulation in the capillaries, caused stasis in the lung, and thereby provoked an accumulation in the already enfeebled right heart, with blood having a tendency to coagulate, the cause of heart-clot alone would seem explained.

We find that they develop with activity when the blood-current is retarded; hence we find them spread throughout the heart-clot itself, possibly at times having been here arrested by the obstruction to the flow caused by the lung-congestion known as a frequent complication of these cases, and finally aiding, by a mechanical cause alone, the deposition of fibrin that forms the clot. They do more. They act upon the white blood-corpuscle, destroy it in all probability, or, at least, as one of the cases proves conclusively, prevent its change to red corpuscles, and thus, the oxygen-carriers being either destroyed or reduced in numbers, with none to replace them, the tissues retain their detritus for want of carriers to relieve them, and another factor is added to increase mortality.

Granted, then, that the appearance of *micrococci* is coincident with symptoms of malignancy, we must assert that, whether their association be *post hoc* or *propter hoc*, they must have common cause; our treatment receives an impetus in a new direction.

I asked Dr. Formad what, in his experience, most readily checked the development of *micrococci* in his culture solutions obtained from erysipelas, diphtheria, etc. He answered, *alcohol*. Dr. Campbell at once withdrew carbonate of ammonia and digitalis from the treatment for the future, and gave whiskey. Five children had already died with the symptoms I have just described, and the sixth was exhibiting all the malignant symptoms, together with those which experience had taught us came from commencing heart-clot. The child had rapid gasping breathing, was becoming cyanosed, its heart was tumultuous, and the rapid pulse was growing weaker. The instructions were to give *three ounces of whiskey within the next twelve hours*, in frequent and small doses. The treatment was carefully carried out, and the child was saved. In this child *micrococci* were found in abundance in the blood, but none had penetrated the corpuscles, and for a long

time the preponderance of white blood-corpuscles was noted, which continued until gradually the blood became normal under the use of *arsenic*.

Again, let me illustrate another point. In one ward there were six cases at the height of eruption. I carefully examined, with Drs. Campbell and Markoe, each case. One case was found to be of a malignant type. The child's right cheek was hardened and inflamed, and the mucous membrane showed that glistening surface so manifest in *cancrum oris*. The breath was fetid, there were cerebral symptoms, and a grayish exudation lined the fauces. We wished to test the microscope, so, without reference to any particular case, we requested Dr. Formad to examine the blood of all. In five the blood showed no *micrococci*, in one a large mass appeared in the field upon the first examination, and this one was the malignant case. This child was placed at once upon large doses of whiskey, and it was also given, in tonic doses, *quinia et ferri citratis* and citric acid.

The *vegetable* acids have also this remarkable effect of checking the development of *micrococci* in culture solutions, especially acetic acid, but the mineral acids, also carbolic acid, it is said, have no such action.

The *bichloride of mercury* also possesses this quality to a very marked degree.

Now let me, for a moment, review this subject in the light of treatment, which to us is certainly of greatest importance. We may look at present upon the *micrococcus* as associated with the malignant symptoms of all complications known as "blood-poisoning." It is found in erysipelas, in puerperal septicæmia, in diphtheria, and in malignant measles. Experience has already taught us that alcohol, the vegetable acids, calomel, or corrosive sublimate, are the drugs *per se* in septicæmia.

The action of alcohol and calomel is too well authenticated in puerperal septicæmia to doubt their efficacy.

We know of late how surprising a result will often attend the use of alcohol and *corrosive sublimate* in malignant diphtheria, and also the value of vegetable acids, especially lemon-juice and claret, in this dreaded disease.

My cases simply illustrate one part of the subject. In this recital I do not allude to the other death-producing complications

which are so universal. Children with measles will die of cerebral complications, of pneumonia, of enteritis, and enterocolitis: with these we have nothing to do at present. Their treatment will, of course, depend upon the lesions: quinine, opium, hot baths, poultices, will all take part.

I have simply brought forward the subject of "blood-poisoning" for your consideration, and, as these remarks are based upon the careful study of but one epidemic, they cannot be submitted as conclusive, but simply as illustrative of what may at some future time be accomplished by studying, not merely the bacteria anatomically and physiologically, but by experimentation with bactericides as antidotal in their action in diseases they may cause or complicate.

The conclusions which seem warranted by the statements of this paper, and, by observations made in other cases in the hospital, are as follows:

The *micrococcus* is found in the contents of pustules and vesicles, and also in the blood taken from the measles-papule in ordinarily mild cases, without its being present in the blood taken from the punctured finger. In severe cases, called malignant in this paper, owing to the rapid appearance of morbid symptoms, the blood shows early in the attack numerous patches of *micrococcus* in the field.

In cases of rapid sthenic disease with high temperature and great tissue-change, the evidences of large quantities of fibrin with a tendency to coagulation are manifest. The rapid production of *micrococci* soon gives the mechanical impediment, and if stasis takes place from any other obstruction to the circulation, clots rapidly form.

The non-appearance of clots in malignant fevers attended with fluid blood, such as low forms of typhus, diphtheria, etc., is simply due to the fact that rapid tissue-changes have resulted in decomposition, instead of into fibrin-forming substances,—no fibrin is formed, hence no clots,—but the *micrococci* are present all the same. These cases are held by some to be the malignant ones, but I think the *foudroyante* character of the others, just mentioned, entitles them to be placed in the same category.

But the *micrococcus*, if left unheeded, may attack the white corpuscle as distinctly seen under the microscope, and

destroy its contents. The red cells also change in appearance, and finally probably become, to all intents and purposes, useless in the economy. When such a condition is seen by the microscope and found extensive, a fatal prognosis can be given, despite the most active treatment.

In cases where the white blood-cells are as yet unaffected, treatment, when active, will be followed by good results, provided the other complications, as visceral inflammation, etc., are not in themselves excessive.

Alcohol (whiskey in our cases) seems in some way, when given in large amounts, to check the progress of the marauders, to arrest the process of destruction, and, if needful, can be associated with quinine and iron in small repeated doses, digitalis perhaps, and frictions, baths and poultices, etc. As we have seen, the symptoms presented are contemporary with the changes going on within the blood; they may, *in lieu* of a careful microscopic examination of the blood, be taken as a gauge for treatment; knowing what can and will take place, early active treatment will give the patient some chance for the future.

THE PATHOGENESIS OF SECONDARY TUMORS.

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(Continued from page 737.)

CHAPTER II.

EXPERIMENTS WITH TUMOR JUICES.

THE pathogenesis of tumors in the early history of pathology found expression in views which are far different from those generally held at the present time. One of these views must claim our consideration, as it is still maintained by such high authorities as Paget and Billroth. This view is that there exists in the system a specific virus upon which the formation of malignant tumors depends. It is also maintained by some that this virus resides in the juices of the tumor, and that secondary growths are likewise formed by infection from the blood, contaminated by the juices of the primary tumor.

As far as the medical profession at large is concerned, this idea can be regarded as the one generally prevalent at the present

time. (I will refer to this view again in the chapter on Metastasis.)

Peyrille,* Dupuytren, Valentin, Vogel, and Billroth experimented with tumor juices, and failed to reproduce a tumor by the injection of these juices into the lower animals.

On the contrary, Lebert and Weyl,† Langenbeck,‡ Eiselt,§ C. O. Weber,|| Follin and Lebert,¶ claim to have succeeded in producing cancerous nodes in different organs of animals by injecting cancer juice into their circulation.

To ascertain whether there is such a specific virus in the juices, I undertook a series of twelve experiments, making injections of tumor juices into different parts of the animals.

The animals were kept under observation for one year, and careful autopsies revealed no trace or effect of the injected juices. The juices were taken from hard and soft cancers, and also from sarcomas. All the experiments were negative, the juices injected proving generally an irritant, which gave rise to an inflammatory process followed by suppuration.

It must be borne in mind that the juices before being injected were all examined, and any particles were carefully excluded.

A microscopical examination of the juices showed the following: numerous compound granule-cells, clusters of fatty degenerated epithelial cells, blood, and a large amount of molecular *débris*, all suspended in a transparent, almost colorless liquid.

These experiments, although by no means conclusive, tend to show that there is no soluble virus, or, in other words, no specific soluble virus, in the juices capable of producing tumors, and that the infectious properties, if any exist, must be sought for in other ingredients of the tumor.

In conclusion, I might add that by inference from the results of my experiments and the numerous experiments of others, I am forced to agree with Formad,** who believes that those experimenters who succeeded in producing tumors by inocula-

* Quoted after Zahn, Congrès International Médical, 1877, Geneva, 1878.

† Virchow's Archiv, xl. pp. 142-532.

‡ Schmidt's Jahrbücher, vol. xxv., 1870, p. 99.

§ Prager Viertelj., Bd. 76, 1862, p. 53.

|| Chirurg. Erfahrungen und Untersuch. Berlin, 1859, p.

259.

¶ Traité Pratique des Maladies Cancéreuses. Paris, 1851,

p. 136.

** Proceedings of Philadelphia Pathological Society, Oct.

27, 1881.

tion with tumor juices dealt with juices that contained tumor particles composed of living cells; in which case the tumor was not a result of infection, but of transplantation.

For the literature and a detailed analysis of this interesting question, see the exhaustive monograph, "The Etiology of Tumors," by Dr. H. F. Formad (*loc. cit.*), and the discussion thereon, *Proceed. Path. Soc.*, October 27, 1881.

CHAPTER III.

TRANSPLANTATION OF TUMOR PARTICLES.

Are tumors due to specific cell life, differing in principles of growth and development from that of normal tissues?

To answer this question a series of twenty-eight experiments, consisting of the transplantation of tumor particles, was performed, and only those experiments were taken into consideration in which specimens examined microscopically showed no retrograde change.

The transplantations of these tumor particles were made at intervals ranging between ten minutes and three hours after the removal of the tumor from the living human being. It was my object to transplant the particles while the cells composing them still possessed vital properties. Thus, should a particle continue to exist without being absorbed, notwithstanding the change in its environment, it would prove conclusively that the principles of growth therein manifested differed in no wise from those which govern the growth of the epithelial cells composing a skin-graft, or it would show that the mode of development differed in no respect from that of transplanted normal tissue.

In the tables it will be seen that twenty-eight transplantations were performed: five with scirrhus cancer, seven with encephaloid, four simple epithelioma, four adenoma, one condyloma, seven sarcoma. The transplantations were made in the following positions: sixteen times subcutaneously, three into muscular tissue, one into anterior chamber of eye, two into jugular vein, one into mammary gland. Of all these experiments only two showed positive results; all the rest were negative. Of the two positive experiments, I will now give some details (both being lung experiments). In the first of these, the embolus, after fifty-five days, was found in the lung, and measurements showed it to

have increased to about three times its original size.

Microscopical examination reveals the following: the embolus is seen to be surrounded by a dense fibrous capsule, which includes, besides the cancer embolus, some organized blood-clot. The capsule referred to is in several places in direct union with the intima of the blood-vessels, and in other places it is so thin that the cancer embolus is in immediate contact with the intima. It appears, in fact, that the cancer structure began to proliferate into the structure of the wall of the blood-vessel, although a complete perforation of the wall was not observed.

The embolus, as mentioned before, is partly composed of the original cancer fragment, which is seen in a most active state of proliferation, and partly of the organized blood-clot. This latter shows slight retrograde change in some portions, while the cancer embolus proper does not show the slightest trace of retrograde change. It can also be distinctly seen that the cancer cylinders, which are seen in such perfect and typical condition, penetrate also into the spaces between the connective tissue of the organized blood-clot.

In the second of these positive experiments, of thirty-five days' duration, the transplanted fragment was taken from a mass of cancer of cervix uteri removed by Dr. William Goodell, at the University Hospital clinic. During the transportation of the fragment from the clinic room to the pathological laboratory, the fragment was kept warm, so as to preserve better the conditions of life. A minute fragment of this tumor was introduced into the jugular vein of a dog by the method described. After thirty-five days it was found in the lung, and represented four times the original bulk. Under low magnifying power the embolus is seen lodged in the lumen of one of the ramifications of the pulmonary artery, and in some places appears in close union with the intima of the blood-vessel. In other places the embolus is somewhat retracted from it. The embolus is incompletely surrounded by a fibrous capsule, and is growing independently as a node, not involving or developing from the surrounding lung-structure, being dependent upon the latter only for a supply of nutrition. It does not present any retrograde change, as shown by the good and uniform staining of the cells composing it.

In the neighborhood are seen a few beautiful bronchioles, and all around the tissue is perfectly normal, although slightly compressed; examining the specimen with higher power, the details of the foregoing appearances were elucidated. The wall of the artery which contains the embolus was seen intact, and in places where the union between it and the capsule of the embolus was effected, the union was so intimate that it was impossible to see where the capsule ended and where the intima of the blood-vessel wall commenced. This was rendered more difficult by the circumstance that the intima had undergone decided thickening, and showed evidences of inflammatory changes, which had accomplished the union. The capsule of the embolus is composed of a dense, fibrous, vascular connective tissue, apparently intermingled with smooth muscular tissue. As far as the embolus proper is concerned, it represents typically the tumor whence it was taken. It will be remembered that it was a cancer in uterine tissue, and hence the presence of some muscular tissue which forms a part of the bulk of the embolus is easily explained. Between the alveoli of the vascular connective tissue, which are filled with typical cancer cylinders, are seen some fat vesicles. All the elements mentioned as forming the component parts of the embolus show active growth. This is evident from the cellular proliferation, from the total absence of any retrograde changes, and eminently from the increase in bulk.

Thus, all the transplantations (twenty-six) were failures, except those to the lungs. These failures I attribute to inflammatory processes destructive to the graft, to the setting up of a chronic suppuration, to impaired cell life, due to delay before transplantation, to mechanical disturbance of the graft, due to restlessness of the animal, rubbing against objects, licking the wound, etc.

There can be no doubt that the large size of the graft in many of the experiments had some negative influence upon the result. It is well known that, in skin-grafting, small grafts give better results than large ones. It may be the same in the case of tumor-grafts. Yet any number of negative results does not disprove one positive result.

Nowinsky,* of St. Petersburg, made a series of experiments similar to mine, in

which he used fragments of a medullary cancer from nose of dog; twenty-seven transplantations on inflamed skin were all negative, and out of fifteen transplantations on normal skin two were positive. In one of these positive experiments Nowinsky introduced subcutaneously on the back of a dog a fragment of cancer. After fourteen days it reached the size of a pea, and in eight months the size of a walnut. At the end of ninth month the dog was killed, and the tumor excised measured three and a half centimetres in diameter.

The second experiment was of the same character. After one and a half months the dog died, and in the cicatrix of the wound a nodule the size of a pea was found. Both these tumors retained the structure of the primary growth.

Nowinsky draws the conclusion that under favorable conditions pieces of cancer introduced under the skin grow. Klenk† and Goujon‡ also succeeded in inoculating animals with cancer. Thus the possibility of successful transplantation of morbid growths is experimentally established.

Cohnheim§ properly remarks that it is not remarkable that living epithelial masses from carcinomata continue to grow after transplantation. The question, however, arises whether these transplanted tumor particles grow by virtue of any specific properties residing in the cell or whether the transplanted cell-masses grow on the principle of the grafts. The latter proposition must be the correct one, as the transplanted particles grew centrally in the form of a node, while not a trace of the tumor structure or any tendency towards it was found in the surrounding tissue. In other words, there was no infection of the surrounding tissues. This was also the case with transplanted normal tissue, as will be shown in the succeeding chapter. It developed in its new and foreign position just in the same manner as it does in its native seat. This fact is well demonstrated by my two successful tumor transplantations, and also by the experiments of Nowinsky, in which the transplanted tumor particles grew in the form of nodes.

It is perfectly conclusive to my mind that no specific infection occurs in the so-called secondary malignant growths. They grow, as do normal tissues, from a central

* Haser's Archiv, 1843, vol. iv.

† Etude sur quelques points, etc. Thèse de Paris, 1866.

‡ Cohnheim's Allgemeine Pathologie, p. 633.

* Med. Centralblatt, 45, 1876.

point, as in a skin-graft, without transformation or infection of the surrounding tissue. Tumors act deleteriously upon the organism by encroaching with their secondary deposit, which are usually of considerable bulk, and tax the nutrition of the economy to the last degree.

Thus I have proved that transplantation with living tumor particles succeeds. That the tumor particle not only retains its vitality, but also its proliferating power. That it grows and decidedly increases in size. Furthermore, I have demonstrated the exact mode of this growth and development,—namely, that the embolus *grows in itself by virtue of ordinary cell-vitality, and not through the agency of any specific infectious properties.*

Again, it is evident from my preparations that the cancerous emboli did not make any "specific impression" upon, or implicate the surrounding tissues into, the cancerous growth. Thus the surrounding normal tissue did not furnish any material for the formation of the new growth (except furnishing the blood-supply), but played an entirely passive part, being simply pushed aside and displaced by the cancerous growth.

I will also show farther on that the growth of normal tissue emboli is accomplished in precisely the same manner, and this serves as a confirmatory proof that metastatic malignant tumors develop in exactly the same manner as particles of normal tissue, and consequently develop *by virtue of ordinary cell life, and not by virtue of any specific properties residing in the cells.*

(To be continued.)

THE RESULT OF OPERATION IN THREE CASES OF APPARENTLY HOPELESS GLAUCOMA.

*Read before the Philadelphia County Medical Society,
April 12, 1882.*

BY S. D. RISLEY, A.M., M.D.,

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IT is not within the scope of this paper to discuss the general subject of glaucoma. The intention is to recite briefly some points in the clinical history and to show the beneficial results of operative interference in a small group of cases usually regarded as beyond the reach of surgical aid. Each of these cases, moreover, pre-

sents features of great interest, since they shed some light upon the vexed question of the etiology of this serious disease, and are therefore regarded as of sufficient importance to place upon record. No subject in the domain of ophthalmology has awakened a greater interest or been subjected to a closer scrutiny than glaucoma. The untiring diligence made manifest in the now extensive literature of the subject is already bearing fruit in the form of seemingly truer views and a better understanding of the real nature of the disease. An exacting inquiry, however, still discovers many points of disagreement between the clinical manifestations of glaucoma and the somewhat conflicting theories entertained regarding its etiology. While much, therefore, remains to be done in the way of accurate clinical and histological observation before a uniform understanding regarding its essential character will be reached, nevertheless the later investigations make it safe to predict that the symptoms which have heretofore characterized glaucoma—as the diminished range of accommodation, increased tension of the ball, contracted field and diminished sharpness of vision, steamy cornea, etc.—will soon be regarded as symptomatic of a variety of conditions affecting the choroidal tract, or interference with the proper excretion of the intraocular fluids.

The following cases are presented in the belief that they will be of some value, not only as a clinical study, but as shedding some light upon the source of the glaucomatous symptoms and the essential nature of the disease. A careful analysis will show that, while differing widely in their early history, the same group of symptoms was ultimately reached in each case, and the same treatment demanded for their relief.

Case I.—Mrs. T., æt. 49, consulted me, in November, 1878, regarding the advisability of an operation on her eyes. Her sight had been failing for many years, first in the left eye, and for about four or five years in the right also. She had already been twice advised—first in 1875, and again in 1876—that she had glaucoma, and that an operation should be performed. She declined, however, because such slight hope of benefit was held out to her. Her vision, however, had steadily grown worse. The left was now totally blind, and the right so defective that she could only with difficulty get about without an attendant. Examination showed O. S.

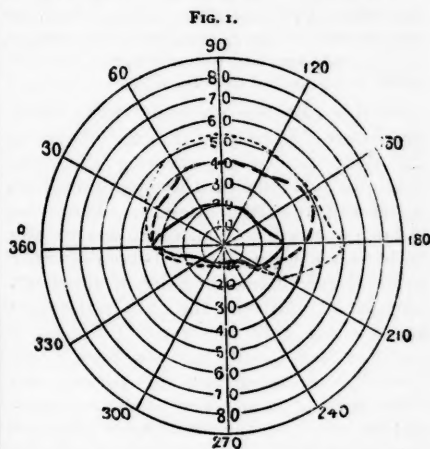
diverging widely; the anterior penetrating vessels were dilated and tortuous; both balls were stony hard; anterior chamber shallow; media transparent. The ophthalmoscope showed the characteristic cupping of the nerve, as seen in glaucoma, the scleral ring being emmetropic, while the lamina cribrosa could be seen only with -4.5 D. in the right and -6 D. in the left eye. Nerves green in both, and in the left entirely devoid of capillarity. With the right eye she could still see some of the letters in LXX of Snellen's test-letters, but only after carefully fixing her eye. The least movement of the card would make a long search for the letters necessary before they could be found and read again. The field of the right eye was limited to 25° to the temple side, 20° above, 25° to nasal side, and practically limited to the horizontal line below. This blotting out of the lower field and the contraction in all directions accounted for her extreme difficulty in finding her way about without assistance. The patient was nervous, extremely distrustful of any advice, and complained of constant headache, with pain and a sense of fullness in the eyeballs. She was advised that nothing but an iridectomy promised any relief from her pain or held out any hope of saving her remaining vision; that it might not do this. However, as her sight was steadily failing, and would soon be entirely lost, she seemed justified in taking the risks attending the operation, since it was possible that good might result from it. Blindness was sure to result if nothing was done.

A broad iridectomy was made upwards in O. D., under ether, without accident, and a week later the same on the left eye, not with any hope of restoring the sight, but for the relief of the pain. The recovery was complete and rapid in O. D., but in O. S. the wound healed with a cystoid cicatrix, which has remained up to the present time, draining constantly the anterior chamber, but giving no serious trouble.

The operation on the right eye was performed on the 11th of November, at which time the field of vision was recorded as represented on the solid black line in Fig. 1. On the 3d of December following, the field was as shown in the broken line. The tension was noted as normal in O. D.; below the normal in O. S. Careful examination showed that in O. D. a short stub of the iris had not been cut away at the base of the coloboma, and that at one point a narrow tag was adherent to the cornea. On the 6th of December the field remained the same as above recorded and central. $V = \frac{20}{LXX}$ readily. The eyes

were white, and she was free from pain. The patient expressed herself greatly delighted with the improvement in V and freedom from pain, and regretted that she had not submitted to the operation in 1875, when first advised. The ophthalmoscope now revealed a high

grade of astigmatism, which had not existed before the operation, and a $+\frac{1}{2}$ cyl. ax., at right angles to the axis of the coloboma, greatly improved the clearness of her vision;



but she could see no smaller letters. She returned in January, 1879, complaining of a mist before her eyes and temple pain on right side. $V = \frac{20}{LXX}$? T +1; but there was no change in the field of vision. She was ordered a solution of eserine, to be used at home. The next visit was made the following March 7, at which time there was no notable change in the sharpness of vision or the extent of the field. May 16, 1879, she returned, complaining that her sight was distinctly worse, that her neuralgic pains had returned. The tension was noted as $+\frac{1}{2}$, and the field was found somewhat contracted, as shown in the interrupted line in Fig. 1. No note was made of the acuity of vision. The eserine was resumed, and she was advised to return very soon if the symptoms were not relieved. On May 27 the tension of the ball had greatly increased, and V had sunk to $\frac{20}{CC}$. On June 6 a broad sclerotomy was done, including in it the coloboma left from the iridectomy. The incision was made as nearly as possible in the angle of the anterior chamber, and included half of the circumference of the cornea, leaving only a narrow bridge above, and the knife—a narrow Graefe's cataract knife—was carried almost through this: so that the stub of the iris adhering to the cornea and closing the angle of the anterior chamber at this point was cut across, and only a thin layer of the sclerotic and the overlying conjunctiva remained. The iris did not prolapse.

The eye recovered from the operation without any reaction, and on June 19 was entirely quiet. The field had widened in all directions to its dimensions as shown in the dotted

line, but V remained at $\frac{20}{CC}$ on July 11, with $+1\frac{1}{4}S \subset +1\frac{1}{4}C$, axis 60° , $V = \frac{20}{3\frac{1}{2}}$, and then she could see indistinctly in the lower field.

The patient has been seen from time to time, her last visit being for an acute conjunctival catarrh in July, 1881, at which time no material change had taken place in her condition as described in July, 1879.

In this case was presented total blindness in the left eye from absolute glaucoma, the right rapidly approaching the same condition, no inflammatory symptoms having at any time been present. There was in both eyes a deep glaucomatous cup, and both nerves were already becoming atrophic. Nevertheless, in spite of these unpromising conditions, the sight in the right eye was not only preserved at the point where it was found, but was greatly improved, and, moreover, the patient was relieved from pain. The previous history of this case and the well-known course of the disease make it nearly certain that by the operative interference this lady has been spared from total blindness for at least three years. The second operation was probably rendered necessary by the adherent stub of the iris to the cornea at the angle of the anterior chamber; and this incidentally teaches not only the importance of such adhesions, but also the great value of sclerotomy in glaucoma.

Case II. (Ann W., et. 50).—Sympathetic irritation; secondary glaucoma; enucleation of O. S.; iridectomy on O. D.

January 18, 1881, I was requested to see a blind woman residing near the Episcopal Hospital, who was represented as suffering great pain. She was found in a dark room, complaining bitterly of her suffering, which had lasted for many weeks, with only short intervals of partial relief. The *left* ball was shrunken, but red, the cornea opaque, and the ciliary region extremely tender to the touch. The right was also red, cornea steamy, shallow anterior chamber, pupil dilated medium, and iris apparently adherent to anterior capsule of lens, ball stony hard, and the superior ciliary region so tender that she shrank back in terror at any efforts to determine the tension of the eye. The vision was merest quantitative perception of light. The following history was elicited:

The left eye had been lost from inflammation in early life. It had been subject to occasional attacks of redness, which she ascribed to "taking cold in it." These attacks had been very frequent during the past summer and winter, and the right eye also became weak, and dreaded the light. These had culminated in the present attack.

She was willing to submit to any treatment promising relief, and was accordingly admitted to the Episcopal Hospital, placed in bed, a purge administered, and a solution of sulphate of eserine (gr. ij- $\frac{1}{3}$) directed to be used in O. D. every four hours. On the third day (January 21) the redness and pain had greatly diminished ($T +2$), and the left eye was enucleated. On the 25th of February the right eye had so far improved that the field of vision could be taken with lighted candles, showing almost entire absence of the lower nasal field, and a nearly uniform contraction elsewhere to from $8''$ to $10''$ at $1'$. The tension was still above the normal, cornea less steamy, and a dim view of the fundus could be had. Lens was apparently becoming cataractous. Could not count fingers or see her way about the ward. No further improvement following the use of the eserine solution, and the tension of the ball remaining above the normal, I did a broad iridectomy upwards about March 1, 1881. No reaction followed the operation, but all pain was at once relieved. In about two weeks she was discharged from the hospital entirely well, and able to read No. LXX of Snellen's test-types at $5'$. Some months later I saw this patient going about the streets in the crowded centre of the city, without an attendant, and evidently with sufficient sight to enable her to do so safely.

Case III.—Secondary glaucoma of both eyes following chronic iritis; O. D., quantitative perception of light; O. S., $\frac{2}{CC}$; Sclerotomy O. D.; Iridectomy O. S.

Mrs. D., et. 46, consulted me on August 17, 1881, concerning her failing sight, and gave the following history:

Eyes had always been regarded as strong, and, although a victim to occasional attacks of sick-headache, had had no symptoms of eye-trouble until March, 1880, when she discovered quite accidentally that vision was less in O. D. than in O. S. The vision in O. D. failed progressively until July, 1880, when she was attacked by severe right hemicrania, which lasted eight days, part of the time so severe as entirely to prevent sleep. The eye was inflamed, and could not bear the light: so she was kept in a darkened room. She noticed no great immediate diminution of the vision during or following the attack; but the failure gradually progressed, until now there is only quantitative perception of light. O. S. seemed well until April, 1881, about one year after the commencing failure of sight in O. D. She then noticed that she could no longer see the time on a distant clock, visible from her window, as before. Vision had progressively failed in this, until now only the large letter CC of Snellen's test-type could in strong light be made out at $2'$.

At present: O. D., occasional shoots of pain in the eyeball and periorbital neuralgia; T

+2; cornea rough and steamy, and sensibility very markedly diminished; iris fixed; pupil small medium, and apparently attached by an annular synechia to the lens capsule; anterior chamber shallow; no ophthalmoscopic reflex from fundus; ciliary injection marked, the anterior perforating vessels being dilated and tortuous; with candles, field temporal only. O. S., cornea rough and steamy, with small central opacity; iris discolored; posterior synechia far advanced and nearly annular; no pouches in iris; T +1; sensibility of the cornea is slightly diminished, and field is good in all directions. $V = \frac{2}{CC}$. Menstrual function had been normally performed until the last period, which was missed, and she was now suffering from alternating flushes of heat and perspiration. She was advised of the serious condition of her eyes, and that only an operation promised any permanent relief from her pain or the retention of the small amount of vision still remaining; that the right eye was probably hopelessly blind. Iodide and bromide of potassium were prescribed internally, and the eserine solution as a tentative measure locally. This treatment was continued from the 17th of August to the 31st, with no change in her condition other than a diminution of the steaminess of the right cornea and a continued diminution of the sight in the left. On this date I did first on the left eye a broad upward iridectomy, under ether, using the bent keratome, iris forceps, and spring scissors. The iritic adhesions to the anterior capsule gave way readily, the aqueous escaped with great energy as though from great tension, and the cutting of the iris, which was done far back, was followed by profuse hemorrhage, which again and again filled the anterior chamber. The eye was at last bandaged with the anterior chamber filled with blood, which, however, in the subsequent progress of the case, was slowly but not entirely removed. At the same sitting a free and large sclerotomy was made in O. D. with a narrow-bladed Graefe's cataract-knife. The puncture was made 2 mm. back from the outer corneal limbus, 2 mm. above the horizontal meridian, while the counter-puncture was made at a corresponding point at the inner limbus, 2 mm. below the horizontal meridian. The knife was carried upwards, skirting the angle of the anterior chamber. The iris lapped over the knife, but with great care and a gentle rotary motion the incision was completed without wounding it. The upper part of the incision was carried almost through the sclerotic, so that only a paper-like bridge and the overlying conjunctiva were allowed to remain. The iris showed no tendency to prolapse.

There was no reaction following the operation in O. D. In O. S. there was some puffiness of the lids and temple pain for a few

days, but on the whole she was more comfortable after the operation than for many months before. The recovery was rapid and satisfactory. On the 29th of September, twenty-four days after the operation, Mrs. D. visited the office, when the following note was made: O. D., Tn. O. S., T —; O. D., $V = \frac{20}{CXXXVI}$; O. S., quantitative perception of light; remains of blood-clot in the pupil. A month later (October 14) V in O. D. $\frac{20}{80}$; O. S., no improvement. Since October there has been some tendency to renewed attacks of iritis, the left passing through a moderately severe acute exacerbation. During this attack atropia solution was instilled, with resulting marked and rapid improvement of all the symptoms. Iodide of potassium and the bichloride of mercury have been used, with long intervals of intermission. On December 28, V in O. D. was $\frac{20}{80}$, Tn, no limitation of field, cornea clear, annular synechia, from which the iris was threatening in places to separate itself. The anterior capsule in the remaining pupillary space was grayish white, and no distinct image of the fundus could be had. In O. S., could not count fingers; T —. Sensibility of cornea not diminished on either side.

Her last visit was made on the 8th of the present month, when the following note was made: O. D., $V \frac{20}{80}$; T + (sl). O. S., Tn.; $V \frac{20}{80}$. Eyes are white, and she has had no pain since her visit on January 10 until the present week. She has now some frontal pain again, but the vision is good, except slight blurring at times. I was now for the first time able to study the eye-ground with the ophthalmoscope. Although the image was a blurred one, it was nevertheless sufficient to reveal a deep glaucomatous cup.

It will be observed that, while these three cases differ widely in their origin, they present many features in common in their later stages. The *first* showed no history of inflammation; the *second* seemed to find its origin in sympathetic irritation passing over into, possibly, iridocyclitis; the *third* was doubtless a case of chronic rheumatic iritis.

They each, however, came with loss of sight, hard eyeballs, contracted field, and pain; the last two with steamy, punctated corneæ and adherent irides. The pain in each case was relieved by eserine, and all of them found relief from opening the angle of the anterior chamber.

Without the operation each of these must have suffered a total loss of sight. Indeed, in Cases II. and III. such was already practically the case, since in each the eye benefited by the operation had only quantitative perception of light.

NOTE ON SCHUYLKILL WATER.

*Read before the Philadelphia County Medical Society,
June 14, 1882,*

BY HENRY LEFFMANN, M.D.

GENTLEMEN,—My excuse for detaining you this evening is the fact that during the past week or so considerable excitement has been developed in this city by newspaper articles in reference to the quality of our drinking-water. I have but little doubt that much of this excitement has been brought about simply by the desire of the newspaper press to create a sensation. Special attention has been called to a sewer which empties into the Schuylkill at Girard Avenue bridge, and it has been boldly asserted that this and other contaminations have so polluted the water that an unusually large number of cases of diarrhoea and allied diseases have appeared in the city during this spring. I have watched the composition and quality of the Philadelphia water-supply for some years, and I have always considered it wholesome water. Observations made at several times during the past winter and spring, and also within the last few days, have not given me any reason to change this opinion. The Girard Bridge sewer is not a new contamination. It is on the bed of a natural water-course, and for many years has been carrying more or less drainage into the Schuylkill. I first examined it chemically in 1872, and it has not materially changed since then. I yesterday visited it, and, entering a short distance, took a sample of water from it. I submit a portion of this water for examination by the members, and also the distillate obtained from it. My examinations lead to the conclusion that it is not a very foul water. The contamination is principally from brewers' refuse. The quantity of water discharged is quite small in comparison to the volume of the river; the sides of the sewer are not dirty, and the mud at the bottom has not the offensive character seen in true sewers. The examination of the distillate shows that the water contains some stale beer, or, at least, similar materials derived from the malt grains, which are seen in considerable amount along the floor of the sewer. I am of the opinion that the contamination which this sewer produces is not sufficient to justify the public alarm which some persons have tried to arouse. While it is ad-

visible to cut off all contamination of the Schuylkill within the city limits, it must be remembered that the streams which flow into the river are feeders to it, and if we shut them off on slight suspicion we will suffer from scant supply, which will be a serious evil. I appreciate the importance of the intercepting sewers, but the real necessity to the water-supply of Philadelphia is a good storage and filtering reservoir, sufficient for many days' supply. Experience has shown that the quality of water may be materially improved by filtration, and the Schuylkill River is liable to two troublesome conditions,—scant supply and turbid freshets. A storage reservoir will get rid of both of these. When the water is clear and abundant, as it is at times, during all seasons, the reservoir should be filled, and such clear water can be depended on for supply during the periods of drought and turbidity.

OLD DISLOCATION OF FEMUR REDUCED BY MANIPULATION.—At the York County Hospital, England, a farm-laborer who had experienced a dislocation of the femur, backwards, was admitted eight weeks after the accident. On the day after admission, Mr. Jalland reduced the dislocation by manipulation, there being no adhesions. The patient was fully etherized. He was afterwards put in bed, with a long lateral splint on the limb, and at the end of a week a plaster bandage was applied, and he was allowed to get up on crutches. He was discharged three weeks later, with a perfectly movable joint.—*British Medical Journal*, May 20.

NEW ANTIDOTE FOR STRYCHNIA.—In the Proceedings of the Royal Society (xxxvi. 162) there is a communication from Messrs. Greville, Williams, and Waters in regard to a new organic base, first prepared by Mr. Williams by distilling cinchonine with caustic potassa. This new agent, which has been named "blutidine," is a cardiac tonic, and reduces the inhibitory power of the vagus, and, from experiments upon frogs, it has been shown to be an antidote to strychnia-poisoning. Experiments upon the higher animals are probably now in progress.

LOBELIA-POISONING—A CURIOUS CAUSE OF DEATH.—A man of intemperate habits in England took a powder containing lobelia, capsicum, etc., by advice of an irregular practitioner. He died without vomiting. At the autopsy there was found a rent in the stomach, through which the contents had escaped into the peritoneal cavity. In a stomach weakened by disease, an emetic like lobelia may, therefore, produce a fatal rupture.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, AUGUST 12, 1882.

EDITORIAL.

WASTED SYMPATHIES.

NO better illustration could be given of the unfitness of sentimentalists to deal with criminals and matters of criminal law than the well-known sensational essay of Charles Dickens, in which he condemns the penitentiary in unmeasured terms, and expresses in the warmest manner his sympathy for the poor German condemned to solitary confinement, who, to while away the weary hours and save himself from insanity, undertook the task of painting his cell-walls with the humblest materials. This frescoed cell has, since the publication of the "American Notes," been one of the sights of the Eastern Penitentiary, and Charles Langenheimer, now generally called Dickens's Dutchman, has been a hero, and the recipient of numberless "tips" and unlimited sympathy. Some time or other it has been noticed that visitors who have come with minds prepared to appreciate all the horrors of the Pennsylvania system, as it has been called, have not been unpleasantly impressed to the same degree that the popular author was, and there are good grounds for believing that the prisoner himself was quite unconscious of deserving the profound commiseration that had been bestowed upon him. Though not quite as free as William Tell, he had comfortable quarters, good clothing, plenty of food, free medical attendance; evidently he was, on the whole, better cared for than he would have been outside, and all without the necessity of the daily struggle for existence with the overworked and underfed world.

That the subject appreciated these advan-

tages is shown by the fact that recently, his term having expired, he stepped out a free man, with a new suit of clothes on, and with some money in his pocket, but within a few days his new existence palled upon him, and, becoming homesick, he committed a larceny in order to get back to his old quarters. The venerable jail-bird, now seventy-nine years of age, has been pensioned for another year, although the records show that he has already passed forty-two years in prison. When brought before Judge Elcock, the prisoner expressed his desire to get back to the Eastern Penitentiary, because he feels more at home there. His request being granted, he thanked the judge for "the favor," and said that he would like to go as soon as the commitment could be made out.

The novelist evidently made the mistake, too often committed by warm-hearted but inexperienced persons, of supposing that individuals of the criminal class are actuated by precisely the same feelings and emotions that are experienced by a higher type of humanity. The philanthropist, himself governed by a nice sense of honor, is by this fact incapacitated from judging the mental operations of those with whom immorality and deceit are natural instincts, inherited from vicious parents and strengthened by a career of crime. It is in dealing with such cases that psychological and forensic law are at direct variance; such an individual certainly cannot be said to be sane in the sense that he is governed by motives that actuate the majority of right-thinking men, and yet the interests of society forbid that the criminal shall be shielded from the punishment which his crime calls for, and to which he has consciously exposed himself.

NEW METHOD OF DETECTING STONE IN THE BLADDER.—In the *Lancet* for July 1, Mr. Davidson states that the attachment of a rubber auditory tube to the sound, connecting it with the ear of the surgeon, greatly facilitates the discovery of calculi.

CORRESPONDENCE.

LONDON LETTER.

THE General Medical Council is sitting, talking, discussing, and coming to conclusions; the last by far the hardest part of the business. Dr. Da Costa went the other day to watch the proceedings: it is to be hoped he was favorably impressed with them. The President referred in his opening address to the report of their visitors to the various licensing boards throughout the kingdom, whose fusion into one examining body has long been agitated. At present we have no less than nineteen bodies which grant licenses to practise. There are the Universities of Great Britain:

London (a good many yearly examining).

Cambridge (a few).

Oxford (almost *nil*).

Durham (young, but coming out).

Edinburgh (a great school).

Aberdeen (a good school).

Glasgow (a large school).

St. Andrew's (ten practitioners yearly).

Then there are:

The College of Physicians (examining).

The College of Surgeons (examining).

The Apothecaries' Company (examining).

The College of Physicians of Edinburgh (examining).

The College of Surgeons of Edinburgh (examining).

The Faculty of Physicians and Surgeons, Glasgow (examining).

Then there are in Ireland:

The University of Dublin.

The Queen's University.

The King and Queen's College of Physicians (examining).

Royal College of Surgeons (examining).

Apothecaries' Hall (examining).

Those marked "examining" do not have their own teaching; whilst the universities teach, except London, which examines, and St. Andrew's, which confers degrees to the number of ten yearly upon practitioners of forty years of age, who are recommended for their respectability and position. Many good men do not take an M.D. when students,—sometimes from want of friends, more often because they have not taken out the precise course of study required, and cannot rectify the error. So they go up to St. Andrew's when they reach forty, and the ten who stand highest at the examination come out "M.D. St. And.;" and good men the St. And. men usually are. Well, now, these bodies have a natural clinging to life, and are by no means inclined to improve themselves out of existence. Each has a representative at the General Council, while the queen appoints six. Curiously, the members of the profession have no direct representatives, as of course they ought to have. The British Medical Associa-

tion has a journal of its own,—its voice,—but the *Lancet* is a private enterprise; so is *The Medical Times and Gazette*, and also *The Medical Press and Circular*. These different journals chirp or thunder according to the topic and the mood they are in. Then the medical students have two organs, *The Students' Journal* and *The Medical News*, in which the student makes his voice audible. Of course the student has to do whatever his seniors think good for him. He has at least plenty of choice as to where he will take his qualification to practise. He may aim high or he may aim low. If he cannot get through at one place, he can try another. Which are the hard examinations, and which the easy ones? Thank you, gentle reader, I shall keep my opinion to myself, especially about the latter. There are thin-skinned persons in this world, and good men who were not particularly given to study at that time of life when examinations are passed, and who have made up for their careless student-days by hard work in after-life. So, if it is all the same to you, we will remember the old saw, "Comparisons are odious." Those corporations who go in for the lenient examinations plead that many localities could not afford a high-priced article in the shape of a medical man, and, on the "half a loaf is better than no bread" argument, undertake to provide for these impecunious areas. It is a delicate matter, rather, with them, and the one-portal examination scheme is not palatable to them. The feelings of these various corporations are respected in so far that it is proposed to allow them to continue to grant their licenses to all who wish for them,—beyond this one "state examination," which shall be imperative. But the prospect is not alluring. After a man has passed the requisite "state examination," he may wish to go in for something harder; but he is scarcely likely to go to the trouble and expense of taking an honorary qualification which ranks lower than the qualification he already possesses. So these lower portals see that they are going to be starved to death if the state-examination scheme comes into play. Recently the Council sent visitors to the different licensing boards to observe the examination process of each and report accordingly, for their instruction, perhaps their guidance. When the protests of the doomed corporations have died down to whispers, possibly some real living action will be taken; but not till then. That the profession should be directly represented is but right; still, the talk on the subject leads to nothing so far. The Royal Commission took evidence from the profession some time ago in connection with a medical act which will be brought forward when the Irish bills are done with, and many legislative measures passed which are at present delayed by the Irish obstructionists. Possibly when that day arrives something will be done. But no country practitioner, it is

said, was examined as to his views. At present the British Medical Association is paralyzed by the antagonism existing betwixt the present editor of its journal and a large section of the members. The editor has a weakness in favor of advocating his own opinions, apparently rather because they are his own than because they are worth something in themselves. For instance, lately he has taken up the whim that it is desirable that medical men be made to notify every case of infectious disease they see to the sanitary authorities, or if they fail to do so they must be fined. Which means, so far as I can understand it, that if a small tradesman's servant-girl has the itch, she cannot go to the doctor without the sanitary authorities being formally made aware of the fact, with what consequences to the small tradesman those best acquainted with village life can best tell. The editor is a Londoner, and knows exceedingly little of the nature of a doctor's work or his position in rural communities, but he is fully aware how an editor can push himself and his views when he breathes the breath of life into the mouth-piece of a great association. But this time he burned his fingers: an association is being formed "having for its simple object to oppose the organized attempts that are being made to compel medical men, under penalty for default, to notify to the sanitary authorities, without the exercise of any discretion, cases of infectious disease;" in other words, an association is being formed within the British Medical Association to counteract the policy of the editor of its journal, who, at the same time, is the chairman of the Parliamentary Bills Committee. Liverpool sent up a petition signed by over two hundred and fifty of its leading medical men to Parliament against this compulsory notification. The editor is likely to have a lively time at the next annual meeting at Worcester, unless he beats a retreat in the mean time, a strategic manœuvre most persons would execute under the circumstances. Leaving the Association to conduct its own affairs, this antagonism betwixt the editor and a large section of the Association makes the utterances of the journal of little or no weight; and yet it is the mouth-piece of the profession, or ought to be, and, under other circumstances, would be,—perhaps, ere long, may be. Anyhow, as matters stand, the medical profession is practically dumb, and its affairs are managed for it. True, the members of the General Council are medical men, but nineteen of them (the great majority) are there as the representatives of corporate bodies, whose interests they look after rather than those of the profession at large. Different views were expressed about the report, which need not be enumerated here. When France was swiftly drifting into difficulties a century ago, an Assembly of Notables was collected to consider how they would

be taxed; but one did not like this, and another did not like that, and so they muddled on till the Revolution, like the flood, came and swept them all away. When our legislature has got through its present mass of urgent requirements, probably it will make a clean sweep of the old existing licensing bodies, with little regard to their feelings; but a good deal of discussion will take place before that time arrives.

It may be of some interest to your readers to have a brief survey of the matters discussed by the Medical Council this session. First came a scheme for the registration of midwives, submitted to them by the Privy Council. It was decided that a committee sit on the matter. Then a dentist's name was erased from the Register. After that another dentist was considered. He carried on practice in his own name at two establishments, and at other two he hoisted other names. It does not appear what especial advantage he expected to derive from this device. But, after an hour and three-quarters' private deliberation by the Council, his proposition to put his own name up at all the places was accepted. Then came the consideration of preliminary examinations and what examinations would qualify for entrance upon a course of medical study,—a long matter. Linked with this came up "personation" at examinations. It appears that a gentleman in Ireland was anxious to study medicine, but was so diffident about his education that he offered a medical man two hundred pounds if he would go up and pass an entrance-examination for him. In the discussion, it appeared that at a recent examination of the Royal College of Surgeons of Ireland the candidate who headed the list was not in Ireland at all at the time the examination was held. Still more surprising, it turned out that this is not an unusual occurrence in "the Green Island." Indeed, one "grinder" in Dublin retained a well-informed young man for the convenience of diffident youths, so that instead of paying the "grinder" to grind them up for their examinations, they had the less troublesome alternative offered them of a substitute who would personate them if required,—an alternative of which several availed themselves. This defeat of the intention of a preliminary examination evidently calls for some remedy. They have queer little ways of their own in Ireland, and this personation is one of them. So the Council wants to know what steps are taken by the different examining bodies against personation. From that they went on to the consideration of the question of dissection being made a part of every primary professional examination, in order to avoid cramming. This is all right enough: cramming is a very bad thing; but then, if there is anything to be crammed in a student's career, the objections to cramming anatomy surely are less than any other subject. This remark

is not to be understood as advocating the cramming of anatomy, but rather as levelled against the inordinate attention paid to this subject in the past. "The men knew their anatomy, anyhow," said a teacher of the old school. Well, perhaps his pride was pardonable; but, unless they knew something else, they were not calculated to be very safe practitioners. Perhaps a little more physiology might not be amiss. Suppose, now, that each man were made at his primary examination to trace the course and metabolism of an albuminoid from the time that it enters the stomach till it is cast out as a urine solid or a bile acid; track it through the portal vein to the liver, to the tissues, if that is its direction, until it is worn out and returned to the liver to be burnt up; or give its career, if part of the *luxus consumptionis*, and the mode by which it is got rid of. This would be a practical matter that would be of service to the student every day of his life. But dissection, the insertion and attachment of the muscles of the thigh,—what earthly good are they to nineteen men out of twenty at any period of their existence? Well, it is unamiable to be too critical, so nothing more need be said. The Irishmen said dissection ought to be a part of the primary examination; the Scotchmen said it was a very proper thing, but where were they to get the subjects requisite for such purpose? There was a slave-trade carried on with Ireland from Bristol in the old days before the island was annexed; but of all the ways of giving Ireland a boost in its present predicament, the exportation of corpses to Scotland for medical-examination purposes is the one least likely to be sanctioned by the English Parliament. The comparative value of life and the ways of the Scotch and Irish are contrasted in this matter of the difficulty of procuring subjects for anatomical purposes in the one country, and the ease with which they are acquired in the other. In the end it was voted that such examination by dissection was "desirable," but not "imperative." Then Dr. Ernest Hart headed a deputation *à* *en*ent this registering of midwives, and gave some historical account of their past and present position; and the Council thanked the gentlemen for so kindly affording them so much information. Then came up the question of examining medical students on chemistry in a laboratory. So that was carried. But the motion that candidates be examined in practical surgery by actual operation on the dead body fell through. The motion referring to examination in practical pathology, by requiring men to know the differences between normal and morbid tissues, was carried. This is very desirable. We are simply nauseated with microscopical investigations into histological changes; but very few men know a diseased from a healthy kidney, unless the change be very pronounced, and, when called upon to make a

post-mortem examination, do not always show up to great advantage, as some criminal trials of recent years tend to show. Then followed a lively discussion on the distinction betwixt "nervousness" and "ignorance" in candidates undergoing examination. The Rev. S. Houghton, a most brilliant Irishman, went straight at the subject, and said nervousness meant ignorance; and if a man was nervous in an examination he was not fit to be a doctor or to face the emergencies of medical practice. Probably Irishmen are not troubled much with nervousness: if they were, their lives would be very uncomfortable at the present time. He thought fifteen minutes ample time to find out if a candidate knew his subject or not. Then Dr. Lyons remarked that something lay with the examiners: "good examiners are exceedingly rare; bad ones, plentiful." (Will the reader please note the inverted commas of this last sentence?) Some examiners have tact, and can find out what a man knows; while others take up much time in such effort. Then there were men who could only extract their information slowly. Surely, to be slow at getting out knowledge is as bad in the emergencies of practice as nervousness! Opinions varied. Some were for sharp examinations, others for giving a little more time in some cases. Sir William Gull was sure that many men were plucked for nervousness, and that the student should be more considered when under examination than he is at present; and there is no doubt the medical baronet is right. But how about brutal examiners? Should not they be removed? There are men—at least men anatomically, if not ethically—of whom common report speaks most unfavorably as to their conduct at the examination-table. Men really well up in their work dread coming before these examiners. There are not many of these inconsiderate creatures, true; therefore, the less difficulty in getting rid of them. If the existence of nervousness is admitted, the question of bearish examiners necessarily and logically follows. An unsuitable meal cost Napoleon dear both at Borodino and Leipsic, and the career of a promising young man may be wrecked by an examiner forgetting to behave like a considerate gentleman, or, at least, trying to come as near it as his individuality will permit. With a nervous man, a harsh manner and a sharp time-limit may determine his rejection almost to a certainty. A nervous man will usually take the trouble to get his subjects up thoroughly; but the man who feigns nervousness at an examination is a dissembler of a very objectionable character, and his rejection is most desirable. His ignorance is blended with deceptiveness in such a way as to make it highly desirable that he never occupy the position of a medical man brought into contact with suffering humanity in its gravest emergencies. This man at a critical moment would be most

likely to affect the greatest confidence in himself, when a second opinion is absolutely essential to the patient's preservation, and so prevent the anxious friends from taking action until it is too late to be of service. How much avoidable misery, how many bread-winners lost, how many mothers allowed to slip into their graves, leaving little ones to be looked after by strangers, loved children taken from sorrowing parents, have there been, just because some medical man does not like to own that he has come to the end of his intellectual tether, will never be known till all hearts are opened at the last assize. Probably a more difficult matter never came up for decision in the history of educated man than this one of "nervousness" or "ignorance,"—justice to the examined man, justice to his patients in the future. I have never been an examiner; if ever I should occupy such a position, the responsibility will be fully realized. Whatever our duty to ourselves or our duty to the profession to which we belong, our great duty is to the public who intrust their lives to us. Assassination is a detestable crime, but it is pardonable compared to an avoidable ignorance which costs a fellow-creature's life. The man who could affect nervousness to cover ignorance at an examination is a man who, in after-life, would fill a cemetery with dead husbands, and allow widows to die broken-hearted, and orphans to qualify themselves for the fires of hell for want of some one to teach them better, sooner than bow himself to admit that he did not understand a case or how to treat it properly. These are the "black sheep" of the profession. The medical profession can afford to own that it does have its "black sheep," by which is meant not open, disreputable blackguards, but men who fail to estimate fairly their own interests as compared to those of others; men who are exquisitely punctilious about their rights, but who are not so hypersensitive about their duties,—a much more dangerous class of man, for his outward respectability is such as to effectually cover his black-hearted selfishness from the vision of most persons. This man lives upon the reputation of the profession, the unselfish devotion of others; and, thank heaven, the medical profession is able to float a good deal of this kind of dead-weight if necessary! But it does make one at times feel a little honest indignation to see how an artful individual can take advantage of the fair reputation of the profession. And the man who can feign nervousness to cover ignorance at an examination is the man who would perpetrate the selfish indifference to others just denounced. The good men of the profession so preponderate that they can ask to have such potential "black sheep" weeded out; and if the examiners can see their way to doing it effectually, the profession at large and the public will be equally grateful to them for doing so. J. MILNER FOTHERGILL.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

A CONVERSATIONAL meeting of the Society was held at the Hall of the Society on June 14, 1882. Dr. Henry Leffmann read a "Note on Schuylkill Water." (See page 778.) A motion to refer the paper to the Committee on Hygiene, etc., having been made, discussion followed on the subject-matter of the paper and the pending motion.

DISCUSSION ON PHILADELPHIA WATER-SUPPLY.

Dr. Welch said that he objected to the motion to refer the paper to the Committee on Hygiene and the Relations of the Profession to the Public for publication in the daily papers. Such a disposition of the paper he thought inadvisable at this time, as the Board of Health had just condemned the Girard Avenue sewer, which empties into the Schuylkill River near where the water-supply for the city is taken, as a nuisance prejudicial to health; a statement to the contrary emanating from the Society might interfere with the movement inaugurated by the authorities looking towards abating the nuisance. Whether chemical analysis approved or condemned the water-supply, or whether it was better or worse than that of other cities, was of minor importance in comparison with the fact that sewage did flow into it at a point above the pumping-station, and such sewage evidently ought to be excluded.

Dr. Bartholow said that he believed that water might be seriously contaminated and yet such contamination escape the present method of analysis. The injurious quality of sewage might be carried for long distances, for disease-germs are capable of retaining activity under a variety of conditions. The processes of purification to which a slow-flowing river like the Schuylkill is subjected would not be likely to accomplish complete renovation if sewage really entered it, and the samples submitted this evening for the inspection of the members were in themselves sufficient evidence of the serious contamination which the water suffered. Schuylkill water at best is not first-class, and is often objectionable: distinct evidence of impurity can often be found by smell and taste. The protection of the water-courses from contamination is a problem of the highest hygienic moment. It has not yet received proper attention in this country, because the necessity for it has not yet been felt, but the present is the time that a strong effort should be made towards awakening public interest, as it would be more easy to prevent than to cure the evil. England, on account of her dense population, has long since felt the necessity of attention to these matters, and has protected by stringent laws the purity of the water-supplies.

Dr. Eskridge said that physicians practising in the northwestern portion of the city had met with, during the month of March of the present year, a great number of cases of diarrhoea in the 29th Ward. Many assigned the condition of the water (which was quite muddy at the time) as a reasonable cause for the trouble. He was not aware that this section of the city receives a different water-supply from some of those in which no increase of intestinal disorders occurred at the time, yet on this condition of things the excitement recently created by some of the newspapers was based. That water into which sewers empty being drunk is capable of giving rise to disease cannot be doubted. Dr. J. H. Hutchinson had recently read a paper before the College of Physicians of Philadelphia, detailing a large number of cases of diarrhoea occurring among the workmen in a sugar-refinery on the Delaware River front, this establishment having been supplied with water pumped directly from the river near the mouth of a sewer.

Dr. A. H. Smith said that he had had opportunity to compare the water of Philadelphia with that of many other cities, and had found it a good water. He had never seen any proof of its having caused disease. He thought that much of the present agitation was, as the author of the paper had remarked, mere sensation, and the Society should not lend itself to any part in such sensation.

Dr. W. S. Stewart said that, while he did not question the results of the analysis, he thought the water-supply of any city ought to be most carefully watched and kept free from even the slightest pollution. We ought not to be satisfied with having it tolerably pure; our efforts should be directed towards absolute uncontamination.

He referred to a neighbor who, under the protest of his family, had a large cistern built to catch rain-water, to use instead of water from the Schuylkill. Now the whole family are converted to its use, and they have been free from disease, and especially from diarrhoea. Dr. S. was also highly in favor of having a large storage-reservoir constructed, with a brick partition, so that the water on entering one department would be drawn off from the other side to supply the city after it had become more or less filtered by passing through the porosities of the bricks, thus straining off much organic matter, and even preventing fish from escaping into it and decaying, as they are often said to be found ejected from our fire-plugs, which, of course, would be sufficient cause for the most serious malignant diseases.

Dr. McRean said that the discussion had reminded him of the fact that a friend who had been in Mexico, in districts in which the water was bad, had found great advantage in thoroughly boiling it before using. It was thus improved in taste and in quality.

Dr. Leffmann, in closing the discussion, said that he did not wish to be understood as saying that sewer-water should be allowed to flow unrestricted into the Schuylkill, but the practical point was that the water from the Girard Bridge sewer was not very foul, and was very small in amount, and analysis showed that it did not seriously pollute the water. It was true, as Dr. Bartholow had said, that chemical analysis might be unable to detect some of the injurious ingredients in water, but such analysis is all we have on which to base a positive opinion, and, so far as that went, it showed that the Philadelphia water was of good quality. In regard to the statement that much diarrhoea recently existed in the northwestern part of the city, it must be noted that that district does not get the worst water. The district east of Broad and north of Callowhill is partly supplied by Delaware water, which is always more impure than the Schuylkill water. The essential point to be impressed upon the public and upon the authorities is that the most urgent requirement of our water-systems is the construction of a storage-reservoir of large capacity. The construction of intercepting sewers is important, but is not at present the most essential point. The liability to muddiness and the occasional scantiness of the supply are the prime difficulties with the present system.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, MAY 11, 1882.

The PRESIDENT, Dr. S. W. GROSS, in the chair.

Cirrhosis of the liver; enlargement and dropsy of the gall-bladder; closure of the gall-duct; enlarged, pulsating, superficial epigastric vein; enlarged spleen; ascites, hydrothorax, oedema of the abdominal walls and of the legs; absence of early dyspeptic symptoms and of spirit-drinking; cause, possibly chronic lead-poisoning. Autopsy.
Presented by Dr. J. H. MUSSER.

ON the 11th of November, 1881, Mr. S. applied to the medical dispensary of the Hospital of the University for treatment. He was 41 years of age, a car-painter, of good habits, and free from the suspicion of hereditary taint or specific disease. He was married; the father of healthy children. He stated that his illness was of a duration of one year, and that it began with slight jaundice, which gradually increased in intensity. He did not remember any dyspeptic symptoms previous to or since the jaundice. His abdomen began to enlarge three or four months previous to the visit. His bowels had always been constipated. He had lost flesh and strength.

We noted them as follows: features sunken;

marked venous stigmata on cheeks and nose; dark-yellow hue of skin, and yellow conjunctiva; emaciation; harsh and dry skin; distention of the abdomen; oedema of the feet. As noted, the abdomen was considerably enlarged, and, on palpation and percussion, fluid was detected in the cavity. The superficial veins of the right side were not enlarged, but the superficial epigastric vein of the left side was very much enlarged and tortuous, and midway between the umbilicus and the xiphoid cartilage, an inch from the median line, it dipped down through the abdominal walls.

The appetite was good, tongue clean and red, no dyspeptic symptoms, constipation, stools yellow or brown, no hemorrhoids. The liver-dulness was lessened, extending in nipple-line on deep percussion, from the fifth rib; on light, from the sixth interspace to one inch above margin of ribs. In the axilla the dulness was three inches in width. Palpation negative. The spleen was not enlarged. Urine the color of porter, frothy, and showed, with nitric acid, bile-pigment. There was a slight trace of albumen, uric acid, and amorphous urates in abundance. No casts or epithelium. Treatment, diuretic mixture containing tinct. digitalis, potas. acetat., acet. scillæ, spt. juniper. comp., liq. ammon. acet., and a draught containing 10 grs. ammon. mur. to the dose, three times daily.

He continued his visits to the dispensary till the 29th of the month, all the while improving, so that on the last visit he had scarcely any ascites, no oedema of the feet, and much clearing up of the skin. Called to see him January 5, 1882. Found him in about the same condition as on his first visit, save that he had in addition severe cough and dyspnoea, caused by a right hydrothorax, and a hydrocele, and much flatulence, causing suffering. Under the treatment detailed below, the oedema of the feet and the hydrothorax subsided; the ascites diminished. The wasting, however, progressed, the features became more sunken, the face more injected, the jaundice continued. The tongue remained red and raw; flatulence and a "stuffed-up" feeling mostly annoyed him. The bowels were loose. The urine, which had been scanty, increased in amount. Its characteristics were the same as when first analyzed.*

To show that there was serious internal obstruction to the circulation, there developed at first in the right hypochondriac and the lower half of the lumbar and umbilical regions capillary injections in half-moon patches; the entire skin of the abdomen in the later stages was so marked. The spleen was enlarged to twice its natural size.

Treatment.—On the first visit rest and milk diet, ammon. mur. as before, and a mixture of acet. potas. and inf. digitalis. The latter

nauseated him so that its use had to be abandoned. Citrate of caffeine was of good service, increasing the flow of urine perceptibly; it caused wakefulness, however, so that chloral had to be added, and the combination did not act so well. Digitalis, calomel, and squill in pill were of some service, but soon so nauseated him that they had to be given up. After the dropsy and diminished supply of urine, flatulence was the most serious symptom. Carbolic acid, bismuth, charcoal, pepsin, etc., singly or in combination, were of no avail, while spirits of turpentine not only gave prompt relief to the flatulence, but acted well as a diuretic and vascular stimulant. With caffeine and turpentine, rest, and restricted diet, he was brought to the condition mentioned above. Anasarca much diminished. Paracentesis was frequently urged, as frequently refused.

February 8.—His condition remained at about a stand-still. At a consultation, calomel one-tenth grain, pulverized ipecac one-twelfth grain, in pill, every three hours, were ordered. Sodæ et pot. tart. $\mathfrak{z}\text{j}$, and ac. tartaric. $\mathfrak{z}\text{j}$, in Oj of water, to be taken in twenty-four hours. Again increased diuresis for a short time, with relief, occurred, to be followed by an aggravation of symptoms. Elaterium and calomel *pro re nata* replaced the above pill. Hot air and Turkish baths, with no avail. Jaborandi caused diaphoresis, and relieved anasarca considerably.

From March 2 to day of death, attended by another physician. Anasarca increased, jaundice more intense, urine diminished, slight capillary hemorrhages in mouth and throat. The last two months, complained of pain in the epigastrium and hypochondrium, and the twenty-four hours previous to death, of severe excruciating pain in the lower part of the abdomen. Death took place from exhaustion, mind clear, on March 24. For six weeks previous to death a characteristic feature was oedema of the abdominal walls and back.

Forty-eight hours after death I made the autopsy. Rigor mortis well marked. Oedema of feet, of abdominal walls, and back. Skin discolored from jaundice; ecchymoses on back. Abdominal cavity contained three gallons of serum. No peritonitis. Dissection of the superficial epigastric vein showed that at the point mentioned in the clinical notes it dipped down through the abdominal wall, and ran along underneath the muscular fascia, between it and the peritoneum, to the falciform or suspensory ligament of the liver, in which it anastomosed with enlarged veins. One of these veins, as shown by Sappey (quoted by Trouseau), "enters the left branch of the portal sinus, where it is attached to the cord of the umbilical vein." There was no peritonitis. Liver weighed thirty-two ounces; right lobe measured three inches transversely, and four antero-posteriorly, at the left two and one-half and four inches respectively. It was a perfect

* The notes as to the amount of urine passed daily under various forms of treatment were mislaid, as well as the various measurements of the abdomen and feet.

example of true cirrhosis. The gall-bladder was three times its natural size, distended with clear serum. Its mucous membrane was swollen, roughened, and congested. It contained no gall-stones. The gall-duct was impervious; the hepatic and common ducts were much dilated and inflamed. The kidneys were enlarged, hard, and congested. The spleen was enlarged to twice its normal size, dark red, firm on pressure; its capsule thickened. The right pleural sac contained a large amount of liquid. The heart was soft and flabby and bile-stained. All the tissues were stained with bile.

It is of importance to note in the case the absence of spirit-drinking as an etiological factor. I am disposed to think the exposure to lead in following his occupation, although other lead-symptoms were absent, was the cause of the cirrhosis. If it be true, it shows distinctly that the early dyspeptic symptoms of cirrhosis, so markedly absent in this case, are due to the local action of the irritant alcohol, for the poison in the case was inhaled, and hence no irritant to excite dyspepsia. On account of the absence of alcoholism and dyspepsia, the diagnosis was somewhat difficult, and for a time carcinoma of the liver was considered. The diminution in size, and the enlargement of the spleen, were strong factors. The most important point to us was the enlarged external vein. I have never seen or heard of its occurrence to so marked a degree in cancer of the liver. The increased size of the gall-bladder was not made out during life, possibly because of the tense and afterwards oedematous abdominal walls, and partly because of the organ having been behind the ribs and higher up than normal.

I cannot account for the condition of the gall-bladder and duct, either by symptoms or by the post-mortem appearances. The patient never, to his knowledge, had calculi or any severe local inflammation. It may have been a congenital state. There is no doubt that the common and hepatic ducts were inflamed and aided in the causation of the jaundice. Early and frequent tapping, I believe, would have prolonged life, had it been permitted by the patient.

Sclerosis of the head of the pancreas. Presented by Dr. J. TYSON.

The specimen was derived from a lady aged 68, who, while for years delicate in appearance, had very little serious illness until February, 1880, when she had a very severe attack of catarrhal pneumonia which involved successively both lungs. For a year or two before and since that time she would have occasional attacks of flatulent colic with constipation, apt to terminate in diarrhoea. In July, 1881, while residing for the summer in a most healthy mountain-district, she was seized with a diarrhoea in which the stools were typically clay-colored or ashen in appearance.

There was uneven and irregular distention of the abdomen, as though circumscribed areas of bowel were distended with gas. I visited her in July, 1881, and found such a lump, which seemed rather more than usually fixed, just to the left of and below the umbilicus. She only partially recovered from this diarrhoea, and remained very weak. She returned to the city in October, 1881, feeble and emaciated, with a distinct tumor just below and to the left of the umbilicus. A part of this lump was evidently gas, but at its base I thought I could detect a harder and more resisting portion, which was also tender on deep pressure. But of the presence of this hard base I could not then be certain. The diarrhoea continued, and all attempts completely to control it failed. For two or three days at a time, under the use of opiates and astringents, there would be no movement, when would come a sense of discomfort which was relieved by a discharge, at first formed, but finally liquid. The stools soon became distinctly fatty, the milk which formed her almost exclusive diet seeming to be discharged little altered, although there was often some semi-liquid or even partly-formed ashen-hued fecal matter. The same knots of distended intestine continued present at various situations and with varying degrees of distinctness. As she grew thinner, the lump in the neighborhood of the umbilicus became more and more distinct, until I was satisfied that it was a tumor above which lay a knuckle of intestine distended with gas. Hard percussion could always bring out dulness, and the tumor was very sensitive and tender. The fatty diarrhoea continued, and she grew weaker and thinner and more bloodless, until she seemed a mere shadow of her former self, and the abdominal organs could be easily mapped out through the thin walls.

There was never any vomiting, although there was a good deal of nausea at times. Her circulation and respiration were unaffected. The diagnosis of pancreatic disease, rather than of cancer of the stomach, which was made before death, was based upon the absence of vomiting and fatty diarrhoea. She died March 13, 1882.

The autopsy was made twenty-four hours after death. The lump near the umbilicus, easily visible before death, had almost entirely disappeared, in consequence of a uniform distention of the abdomen. There were no lesions of the heart, lungs, stomach, or liver, but about the head of the pancreas were a number of adhesions, so that it was with considerable difficulty that the head of the organ could be isolated. The pancreas was removed with a portion of the gut attached, and found to be hard and resisting, but little enlarged.

Minute examination of the growth revealed an almost purely fibrous structure, with but imperfect alveoli and indistinct cellular contents.

Report of the Committee on Morbid Growths.

—"A microscopical examination of a thin section of the pancreas shows an increase of its fibrous tissue, and an atrophical condition of its secreting structure. The change may be termed a sclerosis of the organ.

"June 22, 1882."

Dr. O'HARA thought that the fatty stools as diagnostic of carcinoma of the pancreas, to say the least, were unreliable.

Dr. TYSON thought, on the contrary, that the early appearance of this symptom, and its long persistence, as in this case,—viz., nine months,—were of the utmost value in deciding upon the presence of pancreatic disease.

Dr. SHAKESPEARE said that Dr. Tyson's case recalled one with similar symptoms, the history of which Dr. Curtin read at the last meeting of the State Medical Society. It presented many similarities, such as fatty diarrhoea, etc., and the diagnosis made was carcinoma of the pancreas. At the post-mortem examination the morbid appearances presented were similar to those seen in Dr. Tyson's specimen. Upon microscopic examination by him, no evidence of malignant disease was found, the pathological changes consisting chiefly of increase in the periglandular connective tissue, and catarrh of the duct and acini. As he remembers it, the gist of Dr. Curtin's paper was the claim that the disease was really a catarrhal pancreatitis.

Dr. MUSSEK asked if there were any bloody stools, as such have been described as constantly occurring in chronic pancreatic affections, such as sclerosis, pancreatic calculi, etc.

Dr. TYSON replied that it was interesting to note that the family had referred to this symptom, having told him that occasional bloody stools had been observed. He had not seen them himself, and was therefore in doubt, knowing the tendency of patients to describe discolored stools as bloody. The patient had been fed on milk. The tumor was much smaller and less characteristic in appearance than when removed. The reagents had changed the appearance of the specimen.

Dr. NANCREDE thought that the specimen was unlike any case of pancreatic carcinoma he had observed, in that after so long a time the growth was so small; and he was inclined to think, in default of microscopic examination, that it was of a benign nature, death resulting from exhaustion owing to the non-absorption of fatty food from deficiency of the pancreatic secretion.

ADMINISTRATION OF IRON.—The tincture of chloride of iron may be administered with safety to the teeth by enclosing it in a capsule of gelatin (Humphreys, in *Med. and Surg. Reporter*). A good method is that in use at the German Hospital, of combining the tincture with phosphoric acid, Curaçoa cordial, and water, or the solution of the acetate of ammonia.

PHILADELPHIA ACADEMY OF SURGERY.

STATED MEETING, JUNE 6, 1882.

The PRESIDENT, DR. S. D. GROSS, in the chair.

ABSTRACT OF DR. NANCREDE'S PAPER, OPENING THE DISCUSSION ON ANTISEPTIC SURGERY BEFORE THE ACADEMY OF SURGERY.

THE paper being too long for full publication, the following abstract contains merely the main propositions and conclusions, without the support of any arguments or facts.

The claims of the Listerians were first examined, and the results of the treatment of a large number of cases by various surgeons were compared with similar records of patients treated by the older methods of dressing. It was contended that Listerians do not maintain that similar results to those obtained by aseptic surgeons were not secured by other methods of dressing *under the most favorable surroundings*, but that, *under the most adverse circumstances*, the best results are obtainable as the rule, and not as the exception; that traumatic fever, suppuration, pain, etc., were entirely prevented in many cases, and reduced to a minimum in all. They maintain that all cases of septic diseases were done away with, except those arising from other than the wound itself. It was demonstrated that Listerism and the Listerian method of dressing were two separate things,—i.e., the former being the principle of attempting to prevent putrefaction of, and consequent infection by, the wound-fluids, and, as a resultant, the prevention or summarizing of suppuration, prolonged healing, etc., while the latter is a mere set of procedures by which these indications are carried out. Suppuration is not necessary for the healing of wounds, and is dependent not only upon the presence of germs in the air, but upon tension of tissues and the presence of intra-traumatic causes of irritation. These first indications might be carried out in various ways: i.e., the germs might be destroyed before reaching the wound, or after free access to it by them rendered incapable of mischief by various germicidal applications. Listerians insist that free drainage is as essential for preventing suppuration, by relieving tension and the removal of intra-traumatic irritation, as the destruction of germs; that perfect cleanliness, perfect coaptation, perfect drainage, and quiet are essential parts of both the theory and the method. The spray is the least essential part, success having been attained in the past without it, and it is merely a convenience, obviating the necessity for rapidity in operating, and for the deluging of wounds with an irritant like carbolic acid. It was contended that the use of this latter agent did not constitute, as had been lately stated, Listerism, but that many other similar agents had been

used successfully. The argument that germs were found under the dressings, and that therefore the system was a failure, was absurd, since the *facts* still remained, however incorrect the explanation of the good attained might be. He showed that only certain forms of organisms were found *which did not favor putrefaction*, and they were only discoverable after the dressings were left on for many days, and that they increased from *without inward*. Their *destruction* was shown not to be absolutely essential, since the substance produced by their development had been found by experiment neutralizable by minute portions of various agents, and that the danger of organisms was dependent upon their quantity, and whether the surrounding tissues were in contact with them, were inflamed, or the reverse. For those who could not accept the germ theory, he showed that all the proved good attained by Listerism and other *modern wound-dressings* would be explained upon other hypotheses. In support of all the foregoing, he adduced a large number of facts upon both sides of the question, reviewed the objections, real and alleged, and insisted that it was unfair and unscientific to ignore the vast accumulation of facts and the opinions expressed by so many distinguished men, either upon the ground of the results of imperfect attempts at Listerism, or, as is vastly more common, on pure *a priori* arguments, without a particle of personal observation or experience. He had himself tried Listerism for some years, had then purposely tried various other wound-dressings, and had come to the conclusion that he would *return to Listerism*. Many other than the above points were freely discussed, but for them the reader must be referred to the original paper, which will be published *in extenso* at some future time.

Dr. Hunt was unable to speak from personal experience of the positive advantages of Listerism over the general plan. Listerism, to a certain extent, had been introduced into the Pennsylvania Hospital, but the observations as yet are too few for any reliable data. The general plan of treatment is antiseptic, but not Listerism in detail. The results are satisfactory, although of late there has been some pyæmia. The hospital has been remarkably free from this trouble of late years. Whether any atmospheric or other conditions favor its reappearance we cannot say.

Dr. Willard said that while statistics could be and often were manipulated to suit the views of a particular individual, yet that, when taken in large numbers and from opposing sides of a question, they should certainly weigh strongly in arriving at a decision. Few have an experience sufficiently large to warrant a positive opinion upon this subject, but the most valuable statistics are from those who have tested thoroughly both the old and the new systems of wound-dressing.

Those who have conscientiously and exactly followed the practice of Mr. Lister have almost universally given it their unqualified approval, and but few have been willing to return to their old methods. Many there are who but half fulfil the requirements, and that only in a few cases, and then denounce the system because they do not obtain the brilliant results secured by Mr. Lister. They are like the surgeons who decry *rest* in the treatment of joint-disease, because by resting the limb for only a few hours, and then permitting the child to run and fall and play during the remaining hours, they do not secure good results. The reason of failure is obvious. If those who are so ready to detract from Mr. Lister's services will, however, but calmly consider their present practice and that of their colleagues, they will see that the English surgeon has compelled the recognition by the surgical world of the great doctrines of absolute cleanliness, thorough drainage, and the shutting out of all irritating influences. As to the means to be employed for carrying out these principles, opinions will ever differ, and must change from time to time. A decade hence will probably see us all treating wounds more successfully than we do to-day, yet the general plan must be in accordance with the rules at present in vogue. In his own practice he had found that the nearer he approached to the enforcement of these principles, the better had been his results. In a recent hospital case, the removal of the entire breast from a feeble woman past sixty, and a sufferer from chronic diarrhoea, although antisepticism was but imperfectly carried out, yet the whole wound healed by first intention, even the drainage-track falling in and closing as soon as the tube was removed. The shortening of the time of the healing process to ten days was certainly worth striving after. In joint-surgery the system had certainly accomplished wonders; and if it was capable of standing this severe test, it was worthy of confidence in lesser dangers.

Dr. Mears said that he had had some experience in antiseptic surgery, both in public and private practice, and he was satisfied that his results had been better since his adoption of antiseptic methods. In St. Mary's Hospital, where he is surgeon, antiseptic surgery had been practised for the past four years with the most decided benefit. The hospital labors under the disadvantage of occupying a building which was constructed for commercial uses and had been converted subsequently to hospital purposes. Naturally many defects in hygienic conditions would exist in such a building under the most favorable circumstances. The hospital is in the midst of railroads and mills, and receives into its surgical wards some of the severest forms of injuries. It is the experience of the surgeons in attendance that much more favorable results have occurred in these cases since the intro-

duction of antiseptic methods. In ovariectomy he has had most positive evidence of the value of antiseptic precautions, and performs all of these operations in accordance with antiseptic methods. He felt that Mr. Lister had made a valuable contribution to surgery, and that surgeons all over the world had learned much from him. On the continent of Europe, especially in Germany and Italy, surgical procedures had undergone, as it were, a revolution, and the best results were obtained in operations under antiseptic methods which before had been attended with the most unfavorable results. The theory of Mr. Lister may be faulty; the practice is good, and has done much for mankind.

Dr. Nancrede said that if additional statistics were needed to prove that the positions he had taken were correct, he could quote the results of Listerism as published by many prominent surgeons. He simply asked that the method be tried, and that those who founded their opposition upon their long-successful *experience* with other dressings would at least be consistent, and not condemn that of which they had no personal knowledge upon mere theoretical grounds. His own statistics were certainly too small to bring forward as proof, but, so far as they go, the operation-books of the hospital will show that his amputation death-rate was lower than that obtained by his colleagues, notwithstanding that his cases—amounting to precisely one-half as many in six terms as those performed by the other surgeons during twenty-three terms—comprised a much larger proportion of severe cases, including two hip-joint and two shoulder-joint amputations.

The speaker remarked upon the peculiar unfairness with which Listerians were treated, saying that any other statements made by them as to matters of fact were implicitly believed, yet when anything relating to aseptic surgery was brought forward, profound doubt or absolute scepticism was felt and expressed; yet their statistics are brought forward with the full knowledge that their sources are open to others who can disprove the alleged facts if false. We have no right to shut our eyes to the result of such statistics, not selected, but of all the operations performed by many prominent surgeons. When Paget, after his more than forty years' experience of all methods of treatment, after stating that from sixty to seventy per cent. of patients were not obnoxious to septic disease, can say that there are several classes of cases where it would be "absolutely wrong not to adopt all the precautions of antiseptic surgery," we should certainly acknowledge the great weight of such a judicial decision.

In considering the subject, it must be remembered that much which passes for aseptic surgery is not in any sense such, whence, of course, failure results, with consequent denial of the value of the method. Drainage-tubes,

instead of doing good, as they are usually disposed, do *harm*. They are much too small, and are commonly passed across the deeper parts of the wound like a seton, *and like a seton they act*. They should be large, merely reach the parts to be drained, and be cut flush with the surface; for it must be remembered that one of the cardinal points of Listerism is the removal of intra-traumatic irritation, and, if carelessly used, tubes are an efficient cause of this.

In reply to the objections regarding a dragging stitch, he had been misunderstood. What was meant and said was that when Mr. Lister had shown that a single such suture could produce the suppurative of tension, yet that in face of this statement some surgeons will almost hermetically seal a wound, providing no *efficient* drainage, and yet exclaim when profuse, although aseptic, suppuration ensues. As all surgeons use the thermometer, he denied that keeping a wound undressed for long periods was dangerous, as this instrument will indicate anything wrong.

In the late discussion on aseptic surgery before the American Surgical Association, Dr. Cole had advanced *one case* of free incision into the knee-joint as a disproof of aseptic surgery; *but he certainly did not and could not do any such operation over and over again, as Sartorple did in a hospital where amputation of a finger would at times result in death from pyæmia.*

Pyæmia and septæmia occur in private practice, as every surgeon, the speaker included, could prove; so that even apparent cleanliness and good hygiene were not *all-sufficient*.

Dr. Nancrede doubted if any operation had been performed in this city precisely as Lister has directed. He places stitches of relaxation as well as stitches of coaptation, which insure no dragging on the healing parts, and button-sutures, which obliterate almost all the cavities which could accumulate discharges, thus fulfilling the indication of free drainage and perfect coaptation in a way which would almost *compel* primary healing. When cases are dressed precisely as Lister directs, and failure *constantly* results, then, but not before, it will be time to condemn his method.

He must refer the debaters to the body of his paper for more extended facts and arguments, but he would again deny that the spray or any kind of dressing was *Listerism*, but that it was only the *Listerian method*, which could be altered or changed in any way so long as the indications were complied with, and that, as he had pointed out, many surgeons really profited by the principles of Listerism while deriding Lister's method of dressing.

He denied that the use of carbolic acid was necessary for Listerism, and that when properly used it was so dangerous. As far as his memory served him, most, if not *all*, of the

poisoning cases following the deluging of the wound with solutions of the agent, or where injections into the loose cellular tissue, as in that around the rectum, were forcibly made, acetate of ammonia, oil of eucalyptus, salicylic acid, etc., could be, and are, successfully used. If Listerism will, under the most unfavorable circumstances, incontestably prevent septic trouble, as in the continental hospitals, it will also, under the *most* favorable circumstances, do away with all septic diseases, except those rare cases which arise from some other source than the traumatism under treatment.

The scientific point now under discussion is not whether our results are very good,—much better than those of twenty years back,—but whether they are the best attainable. The argument that Listerism is *troublesome* is too puerile to need reply when life or a limb is at stake.

Dr. Nancrede advanced other facts and arguments in support of his position, of which space fails.

O. H. ALLIS, M.D.,

Recorder.

GLEANINGS FROM EXCHANGES.

THE SOURCE OF THE LIQUOR AMNII.—Prof. A. R. Simpson, in an interesting communication to the Edinburgh Obstetrical Society, discusses the source of the liquor amnii, especially in connection with two cases of hydramnios, in which careful examination was made of the fœtuses, and with the light thrown upon the subject by recent literature, of which he appends a bibliography.

"The chief point of debate in recent times has been as to the share taken by the fœtal kidneys in producing the liquor amnii. According to Gusserow and his followers, this fluid is in the latter months of gestation almost entirely derived from the urine of the fœtus, which is supposed to be secreted regularly by the kidneys, and evacuated from time to time from the bladder. Wiener even goes so far as to aver that, whilst at the very first the liquor amnii is derived from the skin of the embryo, soon after the fourth week the Wolffian bodies begin to furnish a fluid which escapes into the amniotic cavity; this is thus kept distended, first by the activity of the primitive kidneys, and then by the more fully developed organ. . . .

"The proof of the renal origin of the liquor is sought (1) in the presence of chemical matters, such as indigo, introduced into the fœtus indirectly through the mother's blood, or directly by hypodermic injection into its own body, and secreted by the kidneys; (2) in cases where the urinary bladder of the fœtus has been found distended; (3) in the hydronephroses which result from occlusion of the urinary outlets.

"1. As to the first, I can only say that after reading the papers descriptive of the experiments of Gusserow, Wiener, and others, I

cannot see that more is proved than that the renal function of the fœtus is sometimes called into activity, and that the distended bladder may easily be emptied into the amniotic sac. Wiener says, 'There is no fact which compels us to doubt the regular secretion of the fœtal kidneys and the occasional evacuation of the urine into the liquor amnii.' But what we want are the facts which will compel us to believe in more than an occasional secretion and accidental evacuation of fœtal urine. There is abundant evidence from experiment and observation to show that the fœtal kidneys can and do sometimes secrete actively enough. What is wanting is evidence to show that there is a necessity for continuous renal activity more than there is for hepatic or pulmonary activity in the fœtus in utero.

"2. This leads me to notice the second ground on which the theory of the regular renal activity of the intra-uterine fœtus is sustained,—viz., the observation that the fœtal bladder has sometimes been found distended with urine. Such a case is related by Wiener of a woman who died of a burst varicose vein when far advanced in pregnancy, and in whose uterus the fœtus was found to have the bladder tensely filled with urine. The case admirably helps to prove the point which Wiener is then affirming in his polemic with Ahlfeld as to the influence of intra-uterine pressure on the fœtal secretion and excretion, but it in no way proves habitual renal activity in ordinary conditions; it simply shows that when depuration of the fœtal blood is suspended in the placenta in consequence of maternal hemorrhage, the functional activity of the fœtal kidneys is at once called into play. Where the interruption to the placental circulation sets in more rudely, we constantly see a corresponding effort at functional activity of the fœtal lungs,—an effort, however, that is futile, because the fœtus is shut up in its water-filled sac.

"3. The group of cases where the urinary ducts are atresic at some point and dilated above has also been called into court in support of the theory of the regular activity of the fœtal kidneys; but if they prove anything, they prove that regular renal action is unnecessary in the intra-uterine fœtus. One of the most interesting cases that has recently been recorded we owe to Prof. Rindfleisch. A six-weeks-old child, which had from birth suffered from difficulty in the evacuation of the bladder, died of pleural effusion. The difficulty was found to have been due to hypertrophy of the caput gallinaginis, which had led to vesical hypertrophy and double hydronephrosis. This is to me the more interesting, that some months ago I met with a parallel case. At the post-mortem examination, which Dr. D. B. Hart and I made hurriedly by gaslight, we did not determine the exact seat of obstruction further than that it was below the neck of the bladder. The

child appeared healthy at birth, and was well for three weeks, when it began to feed less willingly and to suffer from sickness. The nurse stated that, though the infant regularly wetted its cloths, she had never seen it pass water in a stream, only in drops. The lower limbs and abdomen became anasarctous, the peritoneum ascitic, and the infant died rather suddenly, within five weeks of its birth, with double pleural effusion. The urinary organs were found as in Rindfleisch's case. That distinguished pathologist supposes that the distention of the ureters and kidneys had begun in utero, and that such cases afford a proof of intra-uterine renal secretion. But it seems to me that we must rather suppose that in utero the renal activity had not been called out, and that it was only after the child was born that the function of the kidneys was established, leading first to hypertrophy of the bladder, then, secondarily, to hydronephrosis, and finally to a fatal issue from the serous effusions resulting from the impediment to renal action. So long as the child was in the uterus, having its blood depurated in the placenta, the urethral obstruction caused no disturbance. Within five or six weeks of the day when the renal activity became necessary for blood depuration, it led to the death of the infant. Does that not mean that during the six weeks antecedent to birth the rôle of the kidneys was entirely passive, so that a strictured urethra was a matter of indifference, and the healthy development of the fœtus was in all respects unmodified, and that immediately after birth the renal function was called into activity, and the urethral interference with it at once began to tell on the health of the child, and within six weeks caused its death?

"Whilst it seems to me, therefore, that we are not warranted in looking to the kidneys as the main source of supply of the liquor amnii, even during the later months of gestation, I by no means deny the occasional and accidental evacuation of the bladder in the amniotic sac, and I am not prepared to give a definite opinion as to the ordinary source of the amniotic liquid. I think we are wisest to acknowledge our ignorance.

"Perhaps some light may come to us by a more careful observation and analysis of cases of hydramnios. The Transactions of our Society bear ample testimony to the tendency, to which I drew its attention some twenty years ago, of women giving birth to anencephalic children to be affected with excess of the liquor amnii. It was curiously illustrated in the cases of two patients who were confined in the Maternity within the same twenty-four hours, and whose histories are fully recorded in the last Quarterly Report. These two cases had this in common: that anencephalic fœtuses were born, and the birth was attended with the escape of an excessive quantity of liquor amnii.

"I am here diverted from the main current

of this communication to call attention to the differences between these two cases, as they illustrate a cause for the excessive accumulation of the amniotic fluid which has not been specially registered, so far as I have noticed, among the causes of hydramnios. In the first case we have to do with a multipara in her eighth pregnancy; in the second the patient was primiparous. In the first the fœtus was simply anencephalic; in the second the spinal column was at the same time bifid in all its extent. If the excess of liquor amnii be due (as in such cases I have tried to show it to be) to the secretion from this exposed serous surface, the excess might have been expected to be greatest in the case where the extensive bifidity of the spine gave an additional area of secretion. The excess, however, was most marked in the first of the cases. In that patient it was such that she overpassed the normal duration of pregnancy. She came into the Maternity about the expected date of her confinement, with symptoms of labor, which passed off. The uterus was so overdistended that though contractions set in from time to time which seemed to indicate the onset of labor, they always subsided again, until the fœtus died. The membranes decayed and burst, and allowed of the escape of some of the liquid. It was only after the waters had some time escaped that effective uterine effort could take place. Now, I suggest that the greater excess of liquor amnii in the first than in the second case is to be explained by the greater laxity of the uterine walls of a multipara. The well-known statistics of McClintock give only five out of thirty-three cases in primiparous patients; of the twenty-eight multiparous cases, eight were second labors, one a twelfth, the rest intermediate. Whatever the source of the liquor amnii may be, the degree of tonicity and tension of the muscular walls of the uterus must have a large influence in determining the amount that is allowed to accumulate; and any loss of tonicity in these muscular walls will favor the occurrence of hydramnios.

"Reverting now to the possible sources of the liquor amnii, it had occurred to me that in these cases one should find in the condition of the kidneys some evidence of unusual functional activity, if their secretion were the usual source of supply. By some mishap both of these fœtuses had been destroyed without the special examination being made; but soon afterwards Dr. Alexander sent me, for class demonstration, another anencephalic fœtus with bifid spine, the birth of which also had been attended with the escape of an unusual flood of waters. I show you now the urinary organs. The bladder and ureters are empty, but perfectly developed, though no urine has passed through them. The kidneys, right and left, are small, and have undergone cystic degeneration, evidently from an early period. Here there can be no possibility of

any participation of the kidneys in the production of the liquor amnii. The liquor was unusually abundant, but the kidneys were functionally useless. It will be of some importance in such cases to collect and analyze the liquid, so as to compare it with the analysis in normal cases; but unless there be shown to be a peculiarity hitherto unsuspected in the nature of the fluid from a hydramniotic ovum, we must conclude that the secretion and accumulation of amniotic fluid can go on quite independently of the functional activity of the foetal kidneys."—*Edinburgh Medical Journal* for July.

SCIATICA TREATED BY NERVE-STRETCHING.—A woman, 54 years of age, suffering for more than two years with sciatica, but without any history of gout or rheumatism, had the nerve stretched in the usual manner by Dr. Truman, at the Hospital for Women, Nottingham, with immediate relief. Six months later there had been no recurrence of the pain.—*Lancet*, July 1.

PICROTOXINE IN EXCESSIVE SWEATING.—Dr. F. P. Henry gives (gr. $\frac{3}{16}$) picROTOXINE at bedtime, and repeated once or twice daily, if necessary, as recommended by Murrell. He reports its successful use in about one hundred cases, not only in phthisical but also in other forms of excessive sweating.

EARACHE CURED BY INFLATION OF THE MIDDLE EAR.—Dr. Jacobi, of New York, asserts that earache in a young infant can often be relieved by closing its mouth and blowing through its nose so as to inflate the Eustachian tube and the middle ear.

THE INTERNAL ADMINISTRATION OF CHRYSOPHANIC ACID.—Dr. Napier, at a recent meeting of the Glasgow Medico-Chirurgical Society, showed two cases of psoriasis which he had treated by chrysophanic acid, commencing with a dose of one-eighth of a grain, and gradually increasing. The results were good, and apparently demonstrated that the drug has a general as well as a local action, and, when given internally, is capable of being absorbed and of exercising a special influence on the skin after absorption. The cases are fully described in the *Glasgow Medical Journal*.

GAULTHERIA AS AN ANTISEPTIC.—Gosselin uses the oil or spirit of winter-green as a dressing in surgical injuries and old suppurating surfaces, with good results. The proportion of oil in the tincture is about ten per cent. It is claimed that this is more agreeable than the common antiseptics, and is equally efficient.

RESECTION OF THE STOMACH.—The first case of resection of the stomach in Italy was performed by Dr. Caselli, on June 14, in a case of cancer of the pylorus. Death occurred from shock. The excised portion was carcinomatous, and measured twelve by thirteen cm. No secondary growths were detected.—*Italia Medica*, June 16.

JABORANDI POULTICE FOR INFLAMMATION.—Dr. Stetman, in the Quarterly Proceedings of the Lancaster County Medical Society, reports several cases of incipient inflammation of the mammary gland and of buboes, and in parotid swelling of mumps, where good results followed the application of a poultice made of one part of jaborandi leaves (softened by maceration with hot water) and two parts of flaxseed meal.

PILOCARPINE.—By treating pilocarpine with fused potash, Chastaing obtained a volatile base which gave a precipitate with platinum chloride. This proved to be methylamine, and there was no evidence of the formation of any conicine. An examination of the residue seemed to show that, under the influence of the potash, the pilocarpine was split up into methylamine, carbonic anhydride, butyric acid, and traces of acetic acid.—*Weekly Drug News*.

MISCELLANY.

AUTOPSY OF GUTEAU.—From the official report of the post-mortem examination of Charles J. Guteau, June 30, 1882, by Z. T. Sowers, M.D., and J. F. Hartigan, M.D., majority of the committee, which has been published in pamphlet form, we extract the following, as giving the best summary of the examination that has yet been published:

"The body being placed in position, it was found to be still warm, the eyeballs slightly protruding, limbs flaccid and well rounded by adipose tissue. It was that of a man five feet, five and three-quarter inches high, and weighing 135 pounds. The skin bore a yellowish tinge over the general surface. There was a slight discoloration on the left side of the face, and a brownish-red mark, made by the rope, was observed just above the thyroid cartilage, and extending about three-fourths around the neck, the knot slipping from the left to the back of the neck. There was phimosi and accumulation of smegma.

"Dr. Loring then made an examination of the eyes, as follows:

"The pupils were both slightly dilated, the dilatation in both being equal. The conjunctiva of left eye slightly congested. Vitreous hazy, with copper-colored reflex; fundus of both eyes undistinguishable. Two hours later: condition of eyes the same, with appearance of transverse fracture of both lenses. These appearances were due simply to strangulation. F. B. LORING."

"A longitudinal incision was now made by Dr. Lamb, with the view only of exposing the contents of the thoracic and abdominal cavities, as was understood by us. This incision extended from the top of sternum to the pubis, and showed adipose tissue to the thickness of about an inch. While this was in progress, Dr. Hartigan made a vertical incision through

the scalp, and sawing horizontally. The partially-detached calvarium remained in such position until Dr. Lamb had removed the lungs and heart, and cut through the great vessels. On dissecting back the flaps, a venous effusion was found in the right pectoralis major muscle near the second rib; the dome of the diaphragm reached up to the fourth rib; slight pleuritic adhesions were found, mostly in upper portion of each side. The pleuritic cavities contained a little serous fluid.

"Lungs.—Were slightly congested; a few small bodies resembling miliary tubercles, such as are commonly seen, were found in the middle part of left lung, near the outer external surface. Every other essential feature of both lungs was found normal. The lungs were then removed, and the heart was next examined.

"Heart.—This organ weighed 10½ ounces; was firm, and contained a soft clot just forming in the right ventricle; the left ventricle was empty. A large amount of fat was deposited on the entire anterior surface, and a villous patch, or old inflammatory spot, was seen on the left ventricle near apex; valves normal. There was slight atheroma at the beginning of the aorta, which could probably be accounted for by high living and confinement. More than two quarts of liquid blood, warm and free from clots, had now escaped into the chest-cavity from its various sources.

"Abdomen.—A large amount of fat covered viscera; stomach contained food; liver was congested, otherwise normal; gall-bladder contained a small amount of bile. The spleen was lobulated and enlarged; Malpighian bodies were quite prominent; the organ weighed fifteen ounces, showing the influence of previous malarial attacks while in jail. Other abdominal viscera normal; bladder contained about five ounces of urine. It may be proper here to remark that the deceased had an evacuation of the bowels and trembled perceptibly on the gallows before the drop fell, as we have since learned from the guard who pinioned his legs.

"Head.—When the foregoing was completed, the head was then proceeded with. The first thing noticed was a scar on the scalp an inch long, situated longitudinally just above and behind the left temple; but there was no corresponding mark upon the skull. The right parietal bone was slightly flattened in its upper and anterior part, covering about two inches square, and terminated at the coronal suture. This flattening was confined to the outer plate, and was at the expense of the diploic structure, as there was no bulging of the inner table immediately beneath that could be discerned. It was regarded of such a trivial nature as to make it unnecessary to take accurate measurement by transverse sections of the skull at this point, or to remove the skull to the Museum for more

minute examination, and it was buried with the remains. There were no other points of asymmetry noticeable.

"The cranial sutures were distinct. There was no visible trace of a frontal suture, the two halves of the frontal bone being thoroughly welded. On the inner surface of the skull the usual bony prominences were well marked, also the Pacchionian depressions. No abnormalities were discovered.

"The thickness of the skull was not measured, owing to the lack of facilities, but to the unaided eye it was normal. The diameters and cubic contents of the skull were not taken, nor the relative size of the fossæ, owing also to lack of facilities.

"Brain-Membranes.—The dura mater was quite strongly adherent in places to the inner surface of the skull, viz., near the trunks of the middle meningeal arteries, also near the longitudinal sinus in front, but could be stripped cleanly from the bone at all these points of attachment, as there was no roughening of the skull here or elsewhere. There was no exudation on any part of the inner surface of the dura mater. Quite a number of Pacchionian granulations were distributed along the course of the longitudinal sinus. The cerebral sinuses contained but little if any blood. The dura mater, pia mater, and brain were adherent to each other on both sides along a limited portion of the longitudinal fissure adjacent to the Pacchionian granulations.

"Arachnoid.—There were very well marked milky opacities of the arachnoid, but no apparent thickening, extending over the upper portion of the convex surface of the hemispheres only. As elsewhere, the membrane was perfectly normal. These opacities were confined to the upper portion of the sulci in this vicinity exclusively, and were such as are often found without previous history of disease. The sub-arachnoid space contained very little fluid; pia mater was easily stripped from all parts of the brain.

"The blood-vessels of the membranes and brain were empty, and the general appearance of the brain was anæmic, or bloodless. Both these conditions can be readily accounted for by the unfortunate removal of the lungs and heart and the severing of the large blood-vessels by Dr. Lamb before the brain or its membranes were exposed or examined, and on this account nothing of importance was attached to this condition, as the blood that was in the brain at the time the autopsy was commenced had an opportunity, at least, of making its exit into the chest-cavity.

"Sufficient examination was made of the large blood-vessels of the brain to determine that they were in a healthy condition.

"Brain.—The brain entire, with a portion of dura mater attached, weighed 49½ ounces, about the average weight for an adult male.

Just how much more it would have weighed had it not been drained of its blood, and had the scales been more delicate, we are unable to say, but certainly it is safe to assert that it would have been considerably more. The consistence of the brain was normal: its specific gravity, and measurements of its chords and arcs, could not be obtained, owing to lack of facilities. There was no apparent asymmetry of the two hemispheres. As regards contour and shape, exact studies were not made, and the comparative weights of the different parts were not obtained; cerebellum was well covered; the occipital lobes were not noticeably blunt or sharp.

"At this stage the autopsy was suspended, and the brain was removed by Dr. Hartigan to the Army Medical Museum, there to wait a more minute examination of its various parts.

"The remaining two members of the committee having proceeded to make the examination of the neck, it was found as follows: externally, a mark, as has been described. Both sterno-cleido-mastoid muscles were ruptured near their centre, also the thyro-hyoid membrane and muscle. The hyoid bone was not broken, nor the laryngeal cartilages. There was no fracture or dislocation of the vertebrae.

"Arriving at the Museum, and in the presence of the majority of those who were in attendance at the autopsy at the jail, the committee further proceeded to examine the brain as follows:

"*Lobes and Convolutions.*—Frontal lobes seemed well developed, but presented a peculiar appearance, due to the arched condition of the floor of the anterior fossæ of the skull.

"*Frontal lobes, left side.*—The first frontal fissure was quite long; it was broken by a single bridge, near the junction of the anterior and middle thirds. The secondary fissure was well marked, so much so that it seemed almost to form an independent primary fissure. The second frontal fissure was well defined, but interrupted by four small concealed connecting convolutions; it communicated with the first by a cross-fissure, and was not confluent with the præ-central fissure. The præ-central was well defined and not confluent. The convex surface of this lobe, as a whole, was marked with an unusual number of cross and other secondary fissures. It was not of a confluent type, but showed a marked tendency to the four-convolution type. The orbital surface showed a radiate orbital fissure, starting from a single central depression or fissure. There were five radiate fissures from this centre. The olfactory fissure showed nothing peculiar.

"*Frontal lobes, right side.*—The first frontal fissure was well defined, non-confluent, except that at its posterior extremity it communicated with a deep cross-fissure. The second

dary fissure was a typical one. The second frontal fissure was well defined and non-confluent.

"The orbital surface was well fissured. The orbital fissure branched off from a small isolated central convolution in seven different rays. The right frontal lobe had an unusual development of secondary fissures, like the left lobe.

"*Parietal lobe, left side.*—Fissure of Sylvius. —There was a partial confluence with the first temporal and also with the fissure of Rolando. In other respects it was normal.

"The fissure of Rolando was well defined and not confluent. The præ- and post-central convolutions, as well as the præ-central lobule, were large and well developed.

"The retro-central fissure was well defined, and separated from the inter-parietal by a small concealed connecting convolution.

"*Parietal lobe, right side.*—The fissure of Sylvius was normal on this side.

"The fissure of Rolando same as on the other side, except it extended slightly into the longitudinal fissure, fissuring the para-central lobule. The para-central lobule was quite small as compared with that on opposite side.

"The recto-central fissure was well defined, and confluent with the inter-parietal.

"*Left side, under surface.*—Island of Reil was well covered. Seven straight fissures and eight convolutions were present.

"The inter-parietal fissure began at retro-central, and ran a well-defined course, ending in the transverse occipital, from which it was separated, however, by a small convolution. It had no complete confluences.

"*Right side, under surface.*—The island of Reil was well covered, and five straight fissures and six convolutions.

"The inter-parietal fissure began in and was confluent with the retro-central. It was well defined.

"*Temporo-sphenoidal lobes, left side.*—The first temporal fissure was slightly confluent with the fissure of Sylvius, and was not so long as usual.

"On the basal surface the inferior temporal fissure was well defined and not confluent; fusiform lobule smaller than on opposite side.

"*Right side.*—First temporal fissure normal length, no confluences. On the basal surface the inferior temporal fissure was normal; it was incompletely confluent with the collateral fissure, which was well defined, but shorter than that on the left side.

"*Occipital lobes.*—The anterior occipital or Wernicke's fissure was present on each side; was well defined and non-confluent. The right transverse fissure was well defined, beginning on the mesial surface and passing out with two small interrupting convolutions. The left transverse fissure was well defined. Thus, of the three fissures which combine in apes to form the ape fissures, viz., the second temporal, the anterior occipital (Wernicke's),

and the transverse occipital, two were only normally defined.

"*Mesial surface, left side.*—Calloso-marginal fissure normal. Above this was a secondary fissure running parallel to it, and ending about opposite the termination of the first third of the corpus callosum.

"*On the right side.*—Calloso-marginal fissure was continued on through the præ-cuneus to parieto-occipital fissure, from which it was separated by a small convolution. The secondary fissure was more developed than on the other side, and extended farther back.

"*Interior of the brain.*—The anæmia and pearl-like appearance which existed might be readily accounted for by the thorough draining before alluded to. The gray cortex was of unusual thickness, notwithstanding the measurements necessary to determine this were taken about four hours after removal, while the brain was in a soft, almost creamy condition, due to the excessive heat of the day and much handling. Ventricles were empty.

"Cerebellum, pons, and medulla, so far as observed, presented nothing peculiar.

"In the preparation of the above report we are largely indebted to the notes of Drs. C. L. Dana and W. J. Morton, of New York City.

"Indeed, these notes were so full and complete, and so nearly in accord with our own views, that in some instances we have adopted them without change.

"We are also indebted to General John S. Crocker (warden of jail), for height, weight, and accident on the scaffold, as previously mentioned.

"In conclusion, we desire to state that we were not in accord with Dr. Lamb in the order adopted by him in the making of the autopsy. We did not object at the moment, for the reason that it had been agreed that he (Lamb) should do the cutting, and after this agreement we did not feel at liberty to interpose an objection at the very instant of beginning the work, with a number of gentlemen present by invitation to witness the operation. We thought then, and think now, that the brain should have first been opened and examined, instead of which the first incision made by Lamb was in the region of the heart; and when the thoracic cavity was laid open we had no idea that it was the intention of the operator to sever the large vessels, which must necessarily be cut in removing the heart, before the examination of the brain was had. The cutting of these vessels was the work of an instant, and was done before objection could be interposed. As hereinbefore stated, it was the severing of these vessels which caused the drain of blood from the brain, and left it in the anæmic condition it was found when examined."

RESOLUTIONS WITH REGARD TO MEDICAL LEGISLATION.—At the annual meeting of the Juniata Valley Medical Society, held at Crescon, Cambria County, Pennsylvania, July 18,

1882, the following preamble and resolutions, after free and full discussion, were unanimously adopted, viz.:

"*Whereas*, The Hon. J. D. Cameron, one of our Senators in the Congress of the United States for Pennsylvania, has introduced into the Senate a joint resolution, 'providing that it shall be a misdemeanor, punishable by a fine of five hundred dollars and dismissal from office, for officers of the United States government, civil, military, or naval, to make discrimination in favor of or against any school of medical practice, or its legal diplomas, or its duly and legally-graduated members, in the examination and appointment of candidates to medical service in any of the departments of the government,' therefore,

"*Resolved*, That this Society, representing the medical profession of the entire Juniata Valley, and largely that of Central Pennsylvania, regards said joint resolution of Senator Cameron as tending only to degrade and subvert the science and rational practice of medicine, and injure the public service.

"*Resolved*, That a copy of this action be forwarded by the Secretary to Senator Cameron, with a respectful request that he will not further favor or urge the passage of said joint resolution by the Senate.

"*Resolved*, That the Secretary furnish a copy of the foregoing to the *Medical News* and *Medical Times* of Philadelphia for publication."

WM. R. FINLEY,
S. M. ROSS,
CRAWFORD IRWIN,
Committee.

HARRY JACOB, Altoona, Pa.,
Secretary Juniata Valley Medical Society.

In referring to this same subject, Dr. Squibb, of New York, speaks of it as a result of the recent agitation by the newspapers of the so-called New York Code of Ethics. He remarks very pertinently, "This extension of the idea of civil and religious liberty to the poor and down-trodden irregulars of all 'schools' is certainly going farther than the framers of the new code intended; but it is really only what might have been expected as an outcome of their liberality and tolerance of error, for if there be no principle at stake, but only mere intolerance of school, then there should be no discrimination permitted. Free trade and unrestricted liberty means just that, whether it be in matter of life and death, in morals or in trade. Mr. Cameron might with equal wisdom and justice to the true interests involved have abolished the medical departments of the army and navy, and substituted for them five patent medicines whose joint advertisements should cover all the possible diseases, because this is really the most popular 'school' of all. Suppose Mr. Cameron's resolution sends on board a national vessel a medical man of the 'school' of homœopathy, for example, to practise his 'school' among

officers trained at Annapolis in accordance with established physical laws. They would not want to trust their lives to the practice of an irrational 'school.' Then what becomes of their civil liberties? They must simply submit and be doctored by joint resolution of Congress, or leave the government service to such as are not troubled by any principles, and who might, in common with a considerable portion of the unthinking community, prefer to be doctored by that 'school' whose medicines were pleasant to the taste or most easily taken. But in the army and navy, unless there be an assortment of 'schools' supplied to each camp or ship, some people will run the risk of not having their choice of 'schools,' and not being able to turn from one school to another. That 'school' which owes so much of its popularity and success to the very superficial and irrational claim that it gives no nauseous medicines might not satisfy soldiers and sailors as well as it does some of the more imaginative people in civil life, and then the soldiers and sailors would be down-trodden and abridged of their liberties.

"In the Senate of the United States there can certainly be no danger that Mr. Cameron's chaotic resolution will ever be seriously considered, but that it was offered at all shows that even in some high places there is nothing like principle or law recognized as underlying or supporting the medical profession which should keep it from affiliation and admixture with mercantile empiricism."

THE CIRCULATION OF THE BLOOD.—The claims of Cæsalpinus to the discovery of the systemic circulation are fully refuted in favor of Harvey by Dr. George Johnson in the last Harveian oration. One of the recent advocates of the Italian's claim is Prof. Ceradini, who bases his statements upon the assumption that Harvey became acquainted with the true theory of the circulation while at Padua; yet he admits that Fabricius had not the remotest idea of a circulation of the blood. Dr. Johnson observes correctly, "If Cæsalpinus had given an intelligible account of the circulation through the systemic vessels, his fellow-countryman Fabricius, of all men, would have been the least likely to be ignorant of it." The word *capillamenti*, often employed by Cæsalpinus, instead of corresponding with the modern "capillaries," really meant the supposed termination of the arteries and veins in nerve-fibres, as anciently taught by Aristotle. The explanation given by Cæsalpinus of the filling-up of veins from below is partly metaphysical and wholly unintelligible, and gives evidence of his adherence to the popular idea of a different course of the circulation during the night from that during the day. Garbled passages from his writings, which are collated by Ceradini, show conclusive evidence of his ignorance rather than his knowledge of the circulation as afterwards announced and promulgated by Harvey.

AN ERROR IN DIAGNOSIS.—A man treated for eight months in a hospital for chronic dysentery went home without being relieved. Believing that he had piles, he applied to a physician, who found no evidences of hemorrhoids, but, being interested in the pathology of dysentery, proceeded to explore the rectum, in which he discovered a number of fibrous bands and the original cause of the tenesmus and colitis,—a piece of beef-bone impacted above the sphincter. Its removal gave immediate relief, and there was no further trouble.—*Dr. Hunter, in Practitioner.*

DEATH FROM CHLOROFORM.—At St. Bartholomew's Hospital, England, recently, a sober man, in robust general health, suffering from cancer of the lip, had chloroform administered to him in the usual way, by pouring about a drachm on a piece of lint, and allowing him to inhale it regularly and quietly; a stage of very violent excitement was followed by cardiac paralysis, and death occurred without further warning. At the autopsy, the only organ notably diseased was the heart, which was large and flabby and weighed thirteen and a half ounces; there was atheroma of the coronary arteries, but no evidence of further degeneration of the muscular substance, nor of valvular disease.—*Brit. Med. Jour., p. 23.*

NOTES AND QUERIES.

THE Lehigh Valley Medical Association will hold its Second Annual Meeting on Wednesday, August 16, 1882, at eleven o'clock A.M., at the Court-House. The address of welcome will be delivered by E. G. Martin, M.D., Mayor of Allentown, Pa. Dr. J. Ewing Mears, of Philadelphia, will read a paper entitled "Observations on the Value of Modern Methods in Abdominal Surgery, with a Study of the Results in Twenty-Four Cases of Abdominal Section."

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM JULY 23 TO AUGUST 5, 1882.

ELBREV, F. W., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for six months on surgeon's certificate of disability. S. O. 166, A. G. O., July 21, 1882.

MUNN, C. E., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, with permission to apply for two months' extension when relieved by Acting-Assistant-Surgeon T. H. Pleasants. S. O. 147, Department of the Missouri, July 28, 1882.

SHUFELDT, R. W., CAPTAIN AND ASSISTANT SURGEON.—The leave of absence granted him in S. O. 92, April 21, 1882, from A. G. O., is extended one month. S. O. 176, A. G. O., August 2, 1882.

RAYMOND, H. J., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—To proceed at once, with necessary attendants, from Whipple Barracks, *via* Fort Verde, to the scene of recent engagements with hostile Indians near General's Spring, and bring in those wounded to Fort Verde, and remain in charge of post-hospital there until further orders. S. O. 112, Department of Arizona, July 19, 1882.

HOPKINS, W. E., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—To proceed from Fort Adams, R.I., to Camp Washington, Gaithersburg, Md., and report to the Commanding Officer for duty. S. O. 132, Department of the East, July 31, 1882.

CARVALLO, CARLOS, CAPTAIN AND ASSISTANT-SURGEON.—Died at Winthrop, near Boston, Mass., on July 23, 1882.